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PART 2

LUFTWAFFE OPERATIONS

First Phase: 1 - 5 September.

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## INTRODUCTION

This second part of the present study is a presentation of the operations of the Luftwaffe. It is restricted to the first but decisive phase of the Polish campaign, from 1-5 September 1939, for the following reasons:

Relatively reliable documentary evidence is available in such profusion covering this period that a detailed and practically complete account can be rendered. In contrast, the documentary evidence available on the rest of the campaign is so incomplete that it appears advisable to cover that period in its entirety in a third part alone.

Another factor which seems to justify a separate treatment of the first phase of the campaign is that within the first five days of air warfare against Poland practically all problems were clarified which had a bearing on the operational and tactical conduct of air operations, such as the testing of the various combat tactics, the problems of cooperation with the other two branches of the Wehrmacht, and the evaluation of experience by the Supreme Command; all later operations by Luftwaffe forces thus were nothing but a repetition or modification of the methods which had evolved during the first five days.

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the operational Luftwaffe in this special undertaking will be mentioned incidentally only insofar as it affected other activities of the operational Luftwaffe in the main areas because of the necessity to detach air units to support the Navy. Voluminous accounts are available, prepared by the German Navy, dealing with the secondary area of operations in the Baltic Sea.<sup>2</sup>

The forces allocated for air defense also cannot be dealt with in this present part, since they were not involved in any way throughout the duration of the Polish campaign in activities in the east. The activities of air units assigned to the Luftwaffe General with the Commander in Chief of the Army can be dealt with only very briefly.<sup>3</sup>

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1. Von Tippelskirch, Geschichte des Zweiten Weltkriegs, Bonn 1951, Athenaeum Verlag.
  2. Karlsruhe Document Collection.
  3. The account will be found at the end of Part 3, see Chapter 11.

After the almost total elimination of Polish air power, the main mission of the Luftwaffe was to be one of direct and indirect support for the Army. This situation actually materialized on the second day of combat, on 2 September. From then on all air operations can be examined and properly understood only if viewed as closely integrated with the operations of the ground forces. A precise knowledge of these army operations thus is indispensable for a presentation and study of air operations in the Polish campaign. The presentation of army operations given here is based almost exclusively on the account given by General der Infanterie von Tippelskirch,<sup>1</sup> from whose work the outline maps included in the present text on army operations also have been taken. The account thus presented at the same time provides the pattern for the corresponding air operations.

There was no cooperation with the Navy in the first phase, from 1 - 5 September, with the only exception of the Baltic area of Danzig - Gdynia - Hel. In this area, which was completely separate and independent from the general operations against Poland, there was some small-scale air-naval cooperation, which will be disregarded in general here. The employment of elements of



Presently available material permits only an account of these units in support of the Fourteenth Army. An overall presentation of the activities of these units will follow later in a separate study.

The overall account presented here is based on authentic documents. A large number of statements were obtained by letter or orally by the present author from qualified persons. These, and contributions by unit commanders dealing with matters of general experience, personal views, and numerous specialized problems have been worked into the text presented here either in part or in their entirety. The original source of such information is stated specifically only where matters of basic importance are concerned.

German publications on the Polish campaign have been disregarded in general. Most of these publications are propaganda pamphlets, wartime reports by propaganda companies, or personal reminiscences printed shortly after the end of the war, and their reliability as source material appears at least questionable. Foreign sources were not available at the time of writing.

In detail, this presentation of the first phase of the campaign is based primarily on the following main

documentary sources and accounts:

1. Der Polenfeldzug 1939, a study by the 8th (Military Science) Division of the Luftwaffe General Staff, Berlin, December 1939. This is a comprehensive Luftwaffe study of the 1-5 September 1939 phase of the Polish campaign based exclusively on orders, war journals, situation and other reports, and official written correspondence. The study was prepared shortly after the event; it can be considered as a preliminary work, an assembly of material. It therefore is incomplete and requires critical examination.

2. Fliegerführer z.b.V. im Polenfeldzug; a compilation by Colonel H. W. Deichmann, Munich 1953. This compilation is based on the personal diary of Field Marshal von Richthofen, and was written 14 years after the event. At the time von Richthofen, then a colonel, was in command of the Special Purposes Air Command (Fliegerführer z.b.V.), and most of the entries in his diary were made during the actual operations. Although presented only in excerpts, these entries are the most reliable source available from intermediate levels of tactical command. In many cases the personal views expressed in the original diary entries are presented with a great measure of reservation, since

Field Marshal von Richthofen was known to be highly temperamental and given to frequently drastic expression of his opinions on persons and matters. The author of the compilation served for many years as the field marshal's adjutant and is still in possession of the complete collection of his diary sheets.

3. Der Einsatz des Fliegerführers z.b.V. im Polenfeldzug 1939, General der Flieger Hans Seidemann, February 1953. The author served during the Polish campaign as Chief of Staff of the Special Purposes Air Command (Fliegerführer z.b.V.). This fact lends great weight to his work, prepared 14 years after the event.

4. Beitrag zur Operationsstudie Polenfeldzug 1939, Generalleutnant Schmid, Januar 1953. The author of this study served for many years as Chief, Branch 5, Luftwaffe General Staff and later as Chief Intelligence Officer, Office of the Commander in Chief of the Luftwaffe. According to him "the study is based on personal recollections supported by not too incomplete notes made during the 1939-45 period. Original documents from the time under study were not available."

5. Diary Entries by Wing Commander Boelcke, 27th Bomber Wing, Concerning His Assignment in the East on



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15 September 1939. It is edited by Wing Adjutant First Lieutenant Thon, and is of particular value as an authentic source because it was written under the immediate impression of combat events and is based on authentic combat records.

6. Operations of the Luftwaffe in the Polish Campaign; With Special Consideration of Their Interrelation with Army-Operations, This lecture, delivered by the present author, at the time in the rank of Generalmajor and serving an assignment as Chief of Staff, First Air Fleet, is dated Berlin 1939. It is the only source giving an account on a high level of command at the time. It is based on all official records available at the time.

7. Directives of the Commander in Chief of the Luftwaffe to the First and Fourth Air Fleets. This compilation, prepared by the present author and completed on 25 September 1954, contains the directives for the conduct of operations, including warning and interim orders, in the original wording, taken from photostat copies of the original teletype messages.

8. Operations of the 3d Group, 27th Bomber Wing (Boelcke), in Poland. This is a study by Generalleutnant Nielsen, who at the time under report was in command of the group and held the rank of major. It is an important source, but since it was only written in 1953 it suffers from the usual defects of works written from memory.

9. Geschichte des Zweiten Weltkrieges, General der Infanterie von Tippelskirch, Bonn 1951.<sup>4</sup> This is considered generally as one of the basic works on the operations of the German Army in World War II.

10. Heeresdarstellung des Polenfeldzuges. This army account of the Polish campaign is by an unknown author and the time at which it was prepared is also unknown.<sup>5</sup>

11. Die OKW-Berichte, September 1939 (OKW Bulletins), Verlag Stollberg, Berlin, 1939.<sup>4</sup>

In addition to the above sources, wide use was made of numerous maps in the preparation of the present overall study, although this part, Part 2, suffers from a lack of usable maps. A complete set of maps of Poland from the US Army and Air Force Central Europe 1:250 000 series (26 Sheets) was available for the detailed preparation of this study, but it has only been possible to include in the finished version a limited number of

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maps with a scale of 1:2 000 000, on which entries could be made with only approximate accuracy, although the use of the first named series above seems indispensable for a proper understanding of the text. The spelling of place names in the text is perforce not quite precise and in many cases seems even contradictory. The old German

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4. All main sources listed here are available in the Karlsruhe Document Collection.
5. This source is alluded to in writing by General der Flieger Paul Deichmann on 31 May 1955 as completely reliable.



maps of the former German-speaking Polish territories contain only German place names, whereas the American maps give only the Polish place names. Furthermore, all maps available frequently give differing spellings for one and the same place name. For this reason errors are possible in the geographical descriptions and therefore also in the tactical details.

Unfortunately "The Polish Military Forces in World War II," an apparently important work prepared by the General Sikorski Institute in London, was available to the present writer for only a brief period during a conference. The Historical Commission of the Polish General Staff in London in the meanwhile has published the second part of the first volume of this work, in which an account is given of military operations from 1 to 8 September 1939.<sup>6</sup>

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6. See treatise by Dr. Bruno Maurach in Wehrkunde, V Year, Munich, January 1956, Volume 1; Karlsruhe Document Collection.

## CHAPTER 1

CHANGES IN THE PLAN OF OPERATIONS AND  
THE INITIAL SITUATION

Hitler Directive # 1<sup>7</sup> contained nothing new concerning the operations of the Luftwaffe, but was merely a confirmation of former directives and orders. The mission assignments and the operational objective remained the same. In like manner the proclamation published simultaneously by Hermann Goering, the Commander in Chief of the Luftwaffe contained nothing new.<sup>8</sup> The 1939 Operational Study (Planstudie 1939) and the directives for Operation Weiss (Fall Weiss) were the only basis. In them a basic definition was given of the operational objectives and the allocation of missions.

Two main principles remained valid in determining the development of power concentrations in operational planning. The first principle stated was: "The first attack by the bulk of all forces will be directed at the Polish air forces." This had made it possible at an early stage for the air fleets to assign the individual tactical units their missions for the first day of attack, subject only to minor moderations arising from later

7. Appendix 23.

8. Appendix 22.

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reconnaissance information. The second principle was: "after this main emphasis in operations will be on support for the Army."

On the basis of these directives issued by the Commander in Chief of the Luftwaffe, the First and Fourth Air Fleets in the past weeks and months had worked out the operational orders for their units concurrently with the orders for the concentration. These orders, only a few of which are still available, applied initially only to the operational and target areas defined by the Commander in Chief of the Luftwaffe so far as this was at all possible in the case of an initial mission. The result of this operational planning was the deployment of Luftwaffe forces which later actually took place.

From this deployment of forces, however, new operational plans had developed in the last few weeks before the campaign which had not been intended and, in fact could not have been visualized, in the original operational study. It is impossible in retrospect to obtain a reliable impression, so far as the time and the causal circumstances are concerned, of the organic development of this extended planning, although the reasons for the modifications are fairly apparent: While preparations were



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in progress by all three branches of the Wehrmacht, new ideas, new plans, new considerations, and new variations were discussed and new demands were made by the Army and the Navy on the Luftwaffe. In all likelihood, the new demands were approved by Hitler and the Wehrmacht High Command and took the form of orders to the Luftwaffe, although no documentary evidence is available to substantiate this assumption. The results of all this new planning crystallized in the last operational orders and directives issued shortly before the opening of the campaign, which are still available in documentary form.

On 31 August the First and Fourth Air Fleets again issued consolidated and supplementary operational orders, from which the final overall plan for the first time becomes evident.

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## I. FIRST AIR FLEET.

On the afternoon of 31 August the Commanding General, First Air Fleet gave the liaison officers of Luftwaffe Command Eastern Prussia and of the 1st Air Division oral instructions for the first day of attack to the effect that the first strike would be against the Polish air forces, but that the second air strike must be in support of the army. To break Polish resistance at the frontiers he instructed the 1st Air Division to attack the Polish forces at Tuchel, south of the Netze River, and at the Brane River, Luftwaffe Command Eastern Prussia to attack the Polish forces at Graudenz, Bromberg, and Strassburg, in both cases in direct support of the army operations. These oral instructions contained nothing basically new, but they show that the First Air Fleet intended committing some of its forces in direct support operations already while the attack was being launched against the Polish air forces and their ground service organization. The following points, in contrast, were new:

1. Luftwaffe Command Eastern Prussia received instructions to transfer the 1st Group, 1st Dive-Bomber Wing, from the Insterburg tactical airfield to the Elbing

base air port. The 1st Group was assigned the mission of destroying the detonation stations for the Vistula bridge at the Dirschau railroad depot and the local electric power station early on the first day of attack in order to prevent demolition of the bridge by the Polish bridge guards. In low-altitude attacks directed at the barracks of the Polish light infantry battalion at Dirschau the planes were also to neutralize the Polish ground defenses at the bridge. This air action was to prepare the way for a surprise attack by army units under the command of Colonel von Medem directed at the rail and road bridge across the Vistula at Dirschau, which was of strategic importance.

2. The 1st Air Division received confirmation of a special mission, apparently included in the operational plans shortly before, in support of the Navy. According to the Directives for the Attack Forces,<sup>9</sup> the Navy had been assigned the main mission of "Destroying or eliminating the Polish naval forces, cutting Polish sea routes, and preventing Polish seaborne trade." It can be assumed that this original mission had been expanded during the preparatory stages to include an amphibious operation aiming at seizure of Gdynia, Danzig, and Hela. In its special



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mission assignment the 1st Air Division received instructions to attack and neutralize Polish naval units--chiefly submarines--in ports, the Polish air units stationed in the Gdynia-Rahmel-Putzig-Hela area, and the coastal artillery batteries on Cape Hela, Cape Oxhoeft, and Hohenredlau early on the first day of attack. The port installations of Gdynia and a number of similar targets were not to be attacked without express orders from the Commander in Chief of the Luftwaffe because they might prove useful to the German war effort.

For the execution of the above mission the 1st Air Division organized Reinforced Wing Kessler, the commander of which was a former naval officer and therefore had the necessary nautical knowledge and experience. The wing

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<sup>9</sup> Weisungen Weiss, Karlsruhe Document Collection.

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included units of various types.<sup>10</sup> The necessity to detach such strong elements naturally reduced the striking power of the 1st Air Division considerably, at least on the first day of attack, so far as its own specific mission was concerned. To compensate for this weakening, the 27th Bomber Wing, under Colonel Behrendt, was to be transferred from the command of the Second Air Fleet-- in the western theater--, to the First Air Fleet with a force of three groups as soon as the campaign began. The wing was assigned directly to the First Air Fleet, which with wise foresight committed it to attack targets around Warsaw, in the combat sector of the Luftwaffe Training Division. The mission assignment for the 27th Bomber group is the only operational order issued by an air fleet of which the original is still in existence.<sup>11</sup>

## II. FOURTH AIR FLEET.

In preparations for the campaign plans provided for main emphasis in the first attacks by the Fourth Air Fleet to be on targets west of the Vistula. Consequently, the 2d Air Division had received orders to attack and destroy the Polish air forces stationed at Lodz, Kielce, and Krakau, and their ground service organization. To support the offensive operations of Army Group South,

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which were to take the form of a swift drive on Warsaw by the motorized units of the Tenth Army, the Fourth Air Fleet had assumed responsibility for the following missions: (1) To provide direct support for the motorized units at their initial penetration into hostile territory; (2) to provide air protection for the units during their advance to the Vistula; and (3) to insure speedy support by bomber units in battle for the numerous river barriers and in battle against Polish forces which might be moved in from the east.

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10. 1st Air Wing, under Colonel Kessler, with the 1st Group, 1st Bomber Wing, 1st Group, 152d Bomber Wing, 2d and 3d Groups, 2d Dive Bomber Wing, 4th Group, 1st Air Wing, and the 4th Naval Dive-Bomber Squadron, with a total of 186 bomber aircraft.
  11. Appendix 24.



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The execution of this mission was assigned to the Special Purposes Air Command which was also required to keep Polish troop movements, particularly by motorized units, in the front and rear areas, as well as the rail and road routes under air observation as far as a line from Neu Sandez-Tarnov-Kielce and Lodz. These agreements had been reached at an early stage with the Army and the last directives for the Fourth Air Fleet were supplemented on 31 August by the written instructions contained in Air Fleet Order # 1.<sup>12</sup> The boundary line between the First and Fourth Air Fleets established on that day was as follows:<sup>13</sup> from Wollstein-Kosten-Pyzdry-Kutno through Lowiz railroad-Skierniewice-Grojec-confluence of Pilica and Vistula Rivers-Radzyn-Maloryta (24 miles southeast of Brest).

### III. RECONNAISSANCE RESPONSIBILITIES OF THE OPERATIONAL FORCES OF THE LUFTWAFFE.

The Commander in Chief of the Luftwaffe had established the following rule regulating the reconnaissance responsibilities of the operational Luftwaffe, effective 31 August: The First and Fourth Air Fleets were responsible for air reconnaissance in their separate areas on either side of the boundary line stated above. Air Fleet

<sup>12</sup>. Appendix 25.

<sup>13</sup>. For details see map, Appendix 26.

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responsibility for reconnaissance extended as far east as the line Stryi-Lvov-Kamionka-Strumilov-Kovel-Kaloryta-Brest-Slonim-Lida-Vilna-the Lithuanian frontier. The reconnaissance responsibilities which operational activities included were roughly as follows: the detection of targets essential for the continued conduct of operations; establishment of the whereabouts of Polish air forces and air defense forces; detection of traffic on Polish assembly and supply rail and road routes and the detection of other Polish troop movements, particularly by motorized units. Special arrangements had been made between the army groups and the air fleets to insure a quick exchange of Army and Luftwaffe intelligence information. Three overlapping zones of reconnaissance activities thus existed: (1) the zone of tactical reconnaissance by the air reconnaissance units allocated to the Army; (2) the zone of tactical and operational reconnaissance by the two air fleets; and (3) the zone of strategic air reconnaissance by GHQ units. Adequately complete reconnaissance coverage of all three zones, both laterally and in depth, thus seemed assured from the very outset.

#### IV. THE COMMANDER IN CHIEF OF THE LUFTWAFFE.



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In addition to the operations planned by the two air fleets, the Commander in Chief of the Luftwaffe had planned an attack against military installations in Warsaw by the combined units of both of them, escorted by twin-engine fighters, on the afternoon of the first day of the campaign. This attack was to be staged on receipt of the code word "Wasserkante." The first condition for an undertaking of this sort was suitable weather. This mass attack was to be followed up by harassing raids throughout the night carried out by the 100th Bomber Group, under the direct command of the Commander in Chief of the Luftwaffe, against specified individual targets. The 100th Bomber Group was a special type unit designated during peacetime as the 100th Air Signal Battalion for reasons of concealment, and included in the Luftwaffe Training and Experimental Regiment stationed at Koethen.



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at mobilization the unit automatically assumed its new designation. The bomber group had two squadrons equipped with He-111-H-3 aircraft. The main purpose of this group was to carry out the initial operation with what was at the time a newly developed method, known as the X-method, in which the use of radar made blind pin-point bombing possible. For the time being the group was earmarked as a strategic GHQ unit for use in Operation Weiss.

Generalmajor Student, in command of the 7th Air Division, had received instructions in August to study the feasibility of an airborne operation to seize the important Vistula River bridges at Dirschau and Graudenz. These bridges were essential for an immediate restoration of rail traffic between Germany proper and Eastern Prussia, which would make the quick movement of reinforcements and supplies to the forces operating from Eastern Prussia possible. Seizure of these bridges already on 1 September therefore was of paramount importance. Pursuant to these plans the 7th Division (Air) reinforced by the 1st Battalion, 16th Infantry Regiment, moved by air and road into an assembly area around Liegnitz on 1 September. This late assembly was due to the necessity for concealment. The orders regulating this assembly are unknown.

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## V. POLISH SITUATION ON 31 AUGUST.

The information available to the higher and intermediate commands of the Luftwaffe concerning the disposition of the Polish Army forces was the same as that available to the German Army commands. Target and other combat data was available in adequate measure for the Luftwaffe units assigned to provide direct and indirect support to the Army. By evening on 31 August numerous reports were received on the Polish mobilization, rail and road movements of Polish troops, and the disposition of the Polish divisions. Even at this early stage two areas of concentration in the Polish Army assembly were clearly recognizable, the one in the general area of Mlava-Bromberg, the other in the Chenstochau-Krakau area. In all essential points the information on the location and disposition of the Polish air forces had remained unchanged.

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changed. The intensified air reconnaissance operations against the Polish ground service organization during the last few days of August served merely to confirm the already available data, apart from a few changes in the units stationed on specific airfields and the detection of a few new airfields. The overall impression was that

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14. Intelligence Reports, Part 1, p. 35, above.



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the Polish air forces, on the whole, were still at their  
peacetime base airfields.<sup>15</sup>

#### VI. GERMAN SITUATION ON 31 AUGUST.

The information available on the Polish situation provided conditions for the initial concentrated attack by the operational Luftwaffe to destroy the Soviet air forces and their ground service installations, and no basic changes were necessary to the prepared plans of operations. In contrast, the last detail operational orders issued by the two air fleets reveal clearly that the primary concept of the Commander in Chief of the Luftwaffe for the conduct of operations, namely, the necessity to annihilate the hostile air forces in their bases, had been modified considerably in the meanwhile by orders from the Supreme Command favoring the Army and the Navy. This circumstance had the following effects: The only dive-bomber group available to Luftwaffe Command Eastern Prussia was diverted to support Special Operation Dirschau; Fifty percent of the forces of the 1st Air Division, namely, five-and-one-third bomber and dive-bomber groups were committed for a number of days to support naval operations against the Baltic coast; The Special Purposes Air Command was committed in its entirety from



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the first day of the campaign on in direct support of the Army, so that its forces most probably would not be available for the all-out attack against the Polish air forces; In addition, the two air fleets, pursuant to directives received on 31 August, designated specific areas of main effort for immediate army support operations, so that a certain percentage of the attack air forces were committed from the very outset.

The result of the above measures was that the "bulk" of the operational Luftwaffe forces provided for in plans were in actual fact reduced to approximately one-half of their original striking power. In addition, the Commander in Chief of the Luftwaffe planned a concentrated attack on Warsaw by the combined forces of the First and Fourth Air Fleets for the second half of the first day of the campaign, an operation motivated in all likelihood by political and personal reasons rather than operational objectives.

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15. See Appendix 27 concerning air reconnaissance reports on the Polish ground service organization at the end of August.

Weather conditions, which might influence the success of the initial all-out air attack decisively, worsened on 31 August.<sup>16</sup> However, weather was not the only factor which would determine the commencement of air operations. On the contrary, the only deciding factor was the political decision taken by the highest political level and that decision was that operations were to commence on 1 September.

Apart from very minor modifications, the Army concentration in the meanwhile had been carried out as described in Part 1 of the present study.

After the strategic concentration of the operational forces of the Luftwaffe had been initiated as early as on 24 August, the attack was ordered exactly one week later for 1 September.

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16. According to the weather forecast on 31 August, at 1700, heavy clouds were expected over Poland on the next day. It was predicted that the cloud banks would extend as far south as Warsaw, and would consist of several layers, the lowest of which would be irregular at an altitude of 3 300 feet.



## CHAPTER 2

THE SURPRISE ATTACK AGAINST THE POLISH  
AIR FORCES ON 1 SEPTEMBER

In the early morning on 1 September, at 0445, units of the Luftwaffe crossed the German-Polish frontier to deliver their all-out blow against the Polish air forces, and at the same time the German army divisions took off for their attack across the Polish frontier.

Weather conditions<sup>17</sup> upset the German plans for the synchronized take-off of all operational air forces, so that only few units were able to take-off punctually according to schedule. As a result, the planned large-scale attack disintegrated into individual actions during the initial stages. At 0550 the Commander in Chief of the Luftwaffe issued the order: "Operation Wasserkante will not be launched today." Counter-air action will continue, particularly against air ports around Warsaw, concurrent with army-support operations as planned." In detail, the deteriorating weather produced the following results in the case of the two air fleets.

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## I. FIRST AIR FLEET.

17. The weather was even worse than had been predicted on 31 August, with a cloud ceiling of 600 feet and a visibility range of 3 000 feet at Warsaw.
18. Compare previously quoted sources and literature. In addition the present author was able to draw on his personal experience as First Air Fleet COFS.



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Operational air reconnaissance activities were restricted seriously and soon had to be halted altogether, particularly in the area ahead of Warsaw. In the area of Luftwaffe Command Eastern Prussia only four groups were able to take off as scheduled. These were the the 2d Bomber Wing HQ units with the wings own 1st and 2d Groups, and the 2d Group of the 3d Bomber Wing and the 1st Group of the 1st Dive-Bomber Wing, the latter reinforced by a squadron from the 3d Group, 3d Bomber Wing. Only one bomber group of the 1st Air Division was able to take off. This unit, the 1st Group, 1st Bomber Wing, was part of Reinforced Wing Kessler, the bulk of which was grounded in Eastern Pomerania by dense fog and only succeeded in taking off in the direction of the Baltic Sea in the afternoon. Of the fourteen-and-one-third attack groups concentrated for the attack only five groups, representing only one-third of the available effective strength were thus able to take off for their missions as scheduled.<sup>19</sup>

On the forenoon of 1 September units of the First Air Fleet carried out the following attacks:

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Unit	Target	Time at Target	Results Reported
1st Gp, 1st Dive-Bomber Wing, with 1 Sq of 3d Gp 3d Bomber Wing	Dirschau	0430	Fighter barracks struck
	Dirschau	0530	Fires in town
1st Gp, 1st Bomber Wing	Putzig-Rahmel	0600	Airfield, runway, sheds, shelters hit
1st Gp, 2d Bomber Wing	Brest-Terespol airfield	0600	9 aircraft destroyed
2d Gp, 2d Bomber Wing	Zambrov-Lomza	0600	Barracks & rail installations hit
2d Gp, 3d Bomber Wing	Kutno & Graudenz	0600	Airfield: sheds destroyed; ammo depot hit
2d Gp, 1st Air Wing <sup>20</sup>	Airfield Warsaw Okęcie	0900	Sheds on fire
1st Twin-engine Fighter Gp, 1 Air Wing	" "	0900	Escort for above group.

19. The 27th Bomber Wing, stationed in the west, had also not been able to take off for transfer to the east because of weather conditions.

20. Operating from Eastern Prussia.



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As will be seen, only five airfields could be taken under attack. Sizable air forces were found on only one of these, the Warsaw-Okecie airfield. The reconnaissance planes of the attacking forces and also operational reconnaissance planes found fifteen airfields deserted. The attack by the 1st Group, 1st Dive-Bomber Wing against the detonating stations for demolition of the Dirschau bridge was carried out as scheduled. However, the purpose of this attack was not achieved and two hours later the Poles blasted the bridge and thereby succeeded in hampering and delaying the German ground operations. The question forces itself on the mind why this mission (Operation Dirschau) was not assigned to a paratrooper unit. Relatively small forces would have been required for this purpose, because it could be anticipated that army forces would have arrived soon to relieve the airborne unit.

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Improving weather conditions around midday in Northern Poland made the dispatch of all Luftwaffe units possible, some of them in repeat missions. These missions were carried out automatically without any necessity for new orders because all units had received their orders in advance. At 1325 the air fleet commander ordered the 27th Bomber Wing, stationed in the west, to attack. The bombers were



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to be over their targets at 1630, where they were protected by the 1st Twin-Engine Group, 1st Air Wing. After returning from its mission the bomber wing was ordered to report to the 1st Air Division for further orders. The units of the wing took off from west German base airfields at Delmenhorst, Wunstorf, and Langenhagen. The route to the target area, Warsaw, was longest from Delmenhorst, a distance of over 450 miles. At this juncture all forces of the air fleet were committed in action, seven groups from Luftwaffe Command Eastern Prussia and thirteen from the 1st Air Division, making a total of twenty groups. All attacks at this stage were against the Polish ground service organization, in direct support of army operations, or against Polish ammunition depots in indirect support of the Army and the Navy. Indirect support missions also included attacks against rail installations, radio installations, and against the presumed Polish headquarters.

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21. Chapter 1, p.

22. For details given in connection with later circumstances see p.

In detail, the following can be said of these operations: The airfields at Graudenz, Thorn, Bromberg, Gnesen, Posen-Luwica, Putzig-Rahmel, Lida, Warsaw-Okecie, Warsaw-Molotov, Goclav, Polck, Biala-Podlaska, and Brest-Terespol were attacked, some of them twice, with good results. Army operations were affected materially by the results obtained in attacks at Dirschau and Graudenz, against rail installations around Poznan, and against the casernes in Zambrzy-Lomza. Attacks against Oxthoeft--including the naval port there--and against shipping supported the operations of the German Navy; these attacks were carried out by five dive-bomber groups, which also attacked Putzig-Rahmel, and the southern tip of Cape Hela.

Other attacks were directed against the assumed Polish headquarters southwest of Warsaw, against the ammunition depot at Rembertov, and against the Polish radio stations at Babice and Lacy. The radio stations were taken under attack pursuant to a report from Army Group North that they were transmitting in code orders of the Polish Army High Command, and the German ground forces reported that after the air attacks, which were carried out by



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dive-bombers, there was a noticeable interruption in Polish radio traffic.

In summarizing, it is found that on the forenoon and afternoon of 1 September units of the air fleet flew a total of thirty group-size missions, since a considerable number of the 17 1/3 groups committed were dispatched repeatedly. In addition, fighters and twin-engine fighters flew seven group-size missions to protect the bombers during their operations.

More important than the number of groups committed in attack is the nature and the number of the targets attacked. Here it is noticeable that seventeen missions were flown against the Polish ground service organization, eight in support of the Army, and five in support of the Navy. Thus, the effort in support of the Army and Navy equalled 56 percent of all missions flown against the Polish air forces and their ground service organization. <sup>23</sup>

## II. FOURTH AIR FLEET.

Weather conditions were more favorable in the southern than in the northern areas of the theater of operations, so that the majority of the air units earmarked for attack missions were able to take off as scheduled early on 1 September. The command was flexible enough



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to insure speedy adjustment to fluctuating weather conditions, and a number of units initially unable to take off were dispatched later in the forenoon, although against other targets than those originally planned. Only three groups of the 4th Bomber wing remained grounded by the weather, and elements of the 76th Bomber Wing had to return to their bases because of deteriorating weather conditions. Between 65 and 75 percent of all offensive units participated in the initial attack. The rest of the missions flown were distributed over the whole day, for which reasons it appears futile to separate them into forenoon and afternoon missions.

Concerning the overall air effort, the following can be said:

Under the 2d Air Division eight bomber and one dive-bomber groups flew a total of twentyone missions, delivering a total of 250 tons of bombs on hostile targets. During these missions the 1st Group, 2d Dive-Bomber Wing, not in evidence in the plans for the assembly, made its first appearance under the division. Under the Special Purposes Air Command three dive-bomber and one ground-attack groups comprising a total of 352 aircraft flew thirteen missions, delivering 139 tons of bombs on assign-

assigned targets. Accordingly, thirteen groups of the air fleet participated in 34 attack missions, making an average of two-and-one half attack missions per group. A relatively high percentage of this overall effort was in direct support of the Army.<sup>27</sup> Only seventeen missions, in which twelve Polish airfields were attacked, some of them repeatedly, were directed specifically against the Polish air forces. Thus, only fifty percent of the overall air effort was in counter-air missions, even less than in the northern areas under the more northerly air fleet.

It remains to be said that the operations of the 2d Air Division must be considered separately from those of the Special Purposes Air Command. Although, nominally under the division, the assigned combat missions and the type of operations of the Special Purposes Command differed so fundamentally<sup>25</sup> from those of the division and the influence of the divisional commander was so small on these activities that

23. (Footnote on p.24) The missions flown by Reinforced Air Wing Kessler against Polish naval air bases around Danzig have been counted as counter-air targets in this compilation.

24. With one single exception, all units of the Special Purposes Air Command participated exclusively in Army Operations. Units of the 2d Air Division flew between four and six missions against army-type targets.

25. The air division had strategic missions, whereas the Special Purposes Air Command had exclusively close support missions for the Army.



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the separation of these two commands, which was formally pronounced shortly thereafter, was a virtual fact on the first day of combat.

Already on the first day of the campaign the air division found itself compelled to make certain changes in its theoretical plans and to recast its plan of operations more flexibly and in a form more adapted to the existing weather conditions. The direction of the attack missions shifted steadily farther south, with main emphasis on the Polish ground service installations in the Lvov-Krosno-Krakau area, the southernmost part of Polish territories. The bulk of three bomber wings<sup>26</sup> were committed against this new target area, with only weak elements operating concurrently against targets in the northern area of operations as far as Lodz and Radom. The main attacks were directed against the airfields at Krakau (where 200 tons of bombs were unloaded in five group-size attacks), Chenstochau, Kattowitz, Krosno, Modrovka, Lvov, Kielce, Radom, and others. In addition, attacks were directed at rail depots and factories in the assigned target areas.

According to the mission assignment, the targets for the units of the Special Purposes Air Command were

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26. 4th, 76th, and 77th Bomber Wings.



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directly ahead of the Tenth Army. In spite of this, direct orders from air fleet headquarters early on 1 September diverted the 77th Dive-Bomber Wing, which constituted one-half of the command's offensive power, to the attack against the Krakau airfield as part of the ordered all-out attack against the Polish air forces. The command initially thus had only one dive-bomber and one fighter group available to provide direct support for the Tenth Army. Seen in retrospect, this air fleet interference in the command authority of the Special Purposes Air Command appears justified, (1) because of the necessity to concentrate all available forces for the initial attack, and (2) because in the initial phases of the attack on the ground by the Tenth Army no worthwhile close air support targets in the form of hostile troops were in evidence.

The command's ground-attack group (2d Group, 2d Air Wing) was dispatched, simultaneously with the opening of the attack by ground forces, to attack settlements known to be occupied by Polish troops and during the day flew several missions against troop concentrations and marching columns behind the Polish front. The dive-bomber groups also were committed repeatedly against Polish troop concentrations, particularly in the general area

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Chenstochau. In one of these missions, the air units were particularly successful in completely scattering a Polish cavalry brigade at Wislun.

During these initial operations the Special Purposes Air command in a growing measure commenced committing its units in accordance with its own interpretation of the ground situation without awaiting army requests for air strikes, since the army command had not yet accustomed itself to the original idea of planned cooperation with the air forces. For this reason, army requests arrived too late, if at all. This type of cooperation between the Special Purposes Air Command and the various Army command agencies will be dealt with in more detail in the critique which is to follow.<sup>27</sup>

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27. Fp. 146-7.



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The total results achieved in operations against ground targets, primarily in the rear of the Polish front on the first day of the campaign, were highly satisfactory and led to the complete disorganization of the Polish ground forces thus attacked. Entire Polish units disintegrated, the troops fleeing in wild disorder from the burning settlements, only to come under repeated air attack in their wild eastward flight. The impressions of the first day of combat thus revealed clearly that the new close support air arm had supported the army's advance decisively and in numerous cases had made the advance possible at all. The losses incurred by the Special Purpose Air Command in materiel on this first day of combat were small: 1 aircraft was missing, 16 were damaged by Polish defensive fire, and 14 had made forced landings.

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### III. CRITIQUE OF OPERATIONS AND THE POLISH SITUATION.

Any review, from the operational viewpoint, of air operations on the first day of attack must take as its starting point the fact that <sup>29</sup> the primary operational concept of the Commander in Chief of the Luftwaffe was weakened considerably by the subsequently ordered large-scale attack against Warsaw. Another factor was the



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unexpectedly unfavorable weather which (1) prevented or delayed the take-off of sizable offensive forces in the early morning and (2) made the execution of Operation Wasserkante impossible. This latter circumstance made it possible to continue their attacks against the hostile ground service organization in the afternoon and thus to a certain extent compensated for the unfavorable effects of the original plans by the Commander in Chief of the Luftwaffe. In this way only approximately one-half of

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28. The damaged aircraft were Ju-87s; those which made forced landing were twin-engine fighters which had completely lost their way on their first combat mission.

29. See p. 10 above.

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the operational Luftwaffe, instead of the originally intended bulk of all air forces, was committed against the Polish air forces, which remained the primary target of the German Luftwaffe.

Accepting as established the fact, which was clearly evident in advance, that the Luftwaffe was considerably superior to the Polish air forces in numerical strength, in the quality of its materiel and personnel, and in morale and command, it seems only right that the Luftwaffe was assigned other missions, such as direct support for the Army in areas of main effort, concurrently with its primary mission. Such a decision to split forces in this manner was also fully consonant with the principles laid down in the Service Manual on the Conduct of Air Operations. However, the methods adopted in implementing this decision were contrary to the basic principle of power concentration, a principle also stressed in the same service manual and which had been adhered to in the original plan of operations. The use of air power in indirect support of the Army seemed fully justifiable in the existing circumstance to facilitate the breakthrough on the ground and the deployment in the Polish rear. However, this support developed into direct support from

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the very outset and, what is more significant, it took the form of attacks on (presumed!) hostile command centers, rail installations, ammunition depots, and armament factories.<sup>30</sup> The overall impression is one of a serious dissipation of effort in planning and in effectiveness.

The tactical results achieved in operations against the Polish ground service organization as measured in casualties inflicted, materiel destroyed, and the impact on morale, can only be estimated. It is to be assumed that, in their first actual combat missions, the individual aircraft crews, the units, and also the intermediate and higher commands overestimated their achievements. There was no possibility at the moment to check their reports, and later checks were uncertain and difficult. After the occupation of Poland by the German Army the Luftwaffe took over the Polish airfields and it was found that the destruction caused in the attacks would not have been serious enough to prevent their use by Polish air forces. In many cases it was found that the bombs dropped had landed within the target area but had not damaged the runways, and many airfields had not been found because of poor visibility, so that the German units had attacked alternate



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targets. Owing to unfavorable weather conditions the attacking crews had been unable to observe and report accurately the results of their bombing. Furthermore, the crews in some cases were inadequately trained in aimed bombing. The reports of "aircraft destroyed on runways," therefore must be accepted and evaluated with caution. It is to be assumed that such reports included training, courier, commercial, sports, and other civilian planes. Furthermore, some of the assumed fighter and bomber planes may have been dummies. The photo reconnaissance carried out immediately to ascertain the target effects produced no reliable evidence.

The best standard by which to measure the effects of the attacks on the first day of the campaign is probably the actual behavior of the Polish air forces following the German attacks, and to draw the appropriate conclusions.

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30. Added to which were the support given to the Navy in Baltic areas, and the missions against spot targets such as the Dirschau bridge and radio stations.

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On the first day of attack the Polish air forces remained surprisingly inactive. No complete bomber units went into action and no bombers participated in ground action. In contrast, Polish fighters were encountered and accepted battle in all areas, but their efforts were scattered. It soon became evident that the Polish fighter planes were no match for the German planes in point of flight performances, and even the German Do-17 aircraft proved faster than the Polish fighters.

In the forenoon Polish ground defenses were extremely feeble, but became increasingly effective as the day wore on. Antiaircraft artillery concentrations were encountered by First Air Fleet units at Thorn, Lodz, Warsaw, Grodno, Modlin, Kutno and other points. In the command area of the Fourth Air Fleet, antiaircraft artillery concentrations were at Radom, Deblin, Lvov, Krosno, and Chenshochau. Lively machinegun fire was delivered against German low-level attacks, but German personnel losses were small in spite of numerous hits.

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For reasons which cannot be established definitely, the Polish air forces made no appearance at all on the first day of the campaign. The causes contributing to this relative inactivity may have been the decentralized

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organization, in which the air units were allocated to the various army commands; the partial destruction of the command and general signal communications networks; the losses in personnel and materiel inflicted by the attacking German forces and resulting from crash landings on emergency airfields; and the demoralizing effects of the surprise German attacks.

However, the German attack had not achieved the desired measure of surprise, so far as the Polish air forces were concerned, because the planned large-scale German attack had deteriorated into a series of individual attacks isolated in timing and area.

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31. First Air Fleet reported 14, Fourth Air Fleet 11 aircraft lost.



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At no time had the German command succeeded in attacking all Polish airfields simultaneously to deal the entire Polish air forces an annihilating blow. The direct result of the scattered German effort was that the Polish air forces gained time to transfer their units to alternate airfields, to redistribute them, and to provide protection for them through a reorganization of their fighter and antiaircraft artillery defenses. In part these transfer movements were only assumed by the German command, in part they were confirmed by reconnaissance, and can be considered as one cause for the inactivity of the Polish air forces on the first day of the campaign and their feeble reaction to the German attack. Reports by German air units contain only rare references to Polish aircraft shot down while airborne.

It can therefore be established that on the first day of attack the German side did not succeed in destroying or completely neutralizing the Polish air forces on the ground and in the air, but that the partial elimination of the Polish ground service organization and the losses inflicted on the Polish air forces airborne and on the ground so far paralyzed them that all they could do was transfer their units to hitherto undetected airfields,

so that their operability was almost completely cancelled. In spite of this temporary paralyzation, the German command on the evening of the first day expected with certainty that the Polish air forces would put in an appearance somewhere and somehow on the following day, and the only question open was when, where, in what strength, and with what combat tactics they would participate in the campaign. Another established factor was the unquestionable superiority of the German over the Polish airforces. In this respect it is only just to emphasize that this superiority was due not alone to the performances and excellency of the German command, crews, and materiel, but also largely to the completely passive behavior of the Polish air forces on the first day of battle, no matter what the reasons for that passivity might have been.

The execution of the second air mission, that of direct support for the Army, produced a great although hardly gained tactical victory, which in some respects also had strategic impacts. The operations of the close support units of the Special Purposes Air Command in particular played a decisive role in breaking Polish resistance in the line of advance of the main German attack army and opening the way for that army from the border

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battle to areas where it could operate freely.

Thus far the present critique of the first day of battle has been exclusively from the viewpoint of a Luftwaffe critic. A valuable supplement to that critique is contained in the interpretation of the air situation at the end of the first day contained in the consolidated daily bulletin issued by the Wehrmacht High Command on

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1 September. A passage dealing with the Luftwaffe in the bulletin reads:

In repeated powerful blows the Luftwaffe attacked and destroyed the military installations on numerous Polish airfields. In addition, a number of ground-attack wings effectively supported the advancing Army. The Luftwaffe thus today secured air supremacy over Poland although strong forces are still held in reserve in Central and Western Germany.

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An Army historian summarizes his estimate of the activities of the Luftwaffe on the first day as follows:

The conditions for the surprising pace at which the German advance broke forward at all points were created by the Luftwaffe through its action in destroying the bulk of the weak Polish air forces on their airfields on the first day of battle. From



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then on the Luftwaffe was free to accomplish its  
other assigned missions.

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32. Karlsruhe Document Collection.

33. von Tipperskirch, p. 25.

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## CHAPTER 3

2 SEPTEMBER--OPERATIONS IN SUPPORT OF THE  
ARMY COMMENCE

On the evening of the first day of the campaign the German Supreme Command arrived at a relatively correct interpretation of the air situation and, accordingly, issued appropriate directives and orders consonant with the requirements of the overall situation for the operations of the committed air forces. Directive # 1, the basic directive, was issued by the Commander in Chief of the Luftwaffe already at 1455 on 1 September and read as follows:

On 2 September the First and Fourth Air Fleets will continue counter-air operations. Warsaw and Posen will be kept under constant observation by weather reconnaissance planes and, whenever possible, will be attacked by bomber groups maintaining a constant alert. The advance by the Army will be given strong support.....

Besides its continued mission of counter-air and

34. In addition attacks were to be directed at radio stations in Warsaw, Thorn, Lodz, Radom, Posen, Lvob, and Krakau. Operation Wasserkante was planned for the afternoon.

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tactical support for the Army, this directive assigned the Luftwaffe the new missions of attacking what were called rail interdiction targets--important key points and junctions of the strategically important rail network--, radio stations (altogether ten), and Warsaw, the latter being a belated execution of Operation Wasserkante. This early issue of orders took place at a time when the execution and results of the planned attacks of the first day were known to an extent of barely 50 percent. However, time requirements made it necessary to issue orders for the next day so early so that they could reach the lowest echelons in time, and the early issue of orders was possible because the Commander in Chief of the Luftwaffe was perfectly clear on the ruling principles in the conduct of operations.

What is less easily understood is that the order for the all-out attack on Warsaw was maintained and that new combat missions were assigned, which resulted in a further dispersal of the air effort in spite of the fact that the first and foremost missions of air warfare had not yet been accomplished fully, namely, counter-air operations and tactical support for the Army, and were in fact still in the initial stages of execution.



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Only two hours later, at 1647, a teletype message ordered a change in Directive # 1, cancelling the order for attacks on rail interdiction targets. Instead, air attacks also were to be directed against Polish troop concentrations and movements farther in the Polish rear.<sup>35</sup> Presumably, operations against rail interdiction targets were no longer thought necessary because the German Supreme Command in its interpretation of the situation had arrived at the conclusion in the meanwhile that the Polish rail movements connected with the strategic assembly were practically completed. This meant that the Luftwaffe could turn its attention to areas closer to the front lines.<sup>36</sup>

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35. In Operation Wasserkante, to be carried out in the afternoon, the bombing of densely populated districts of Warsaw, such as the suburb of Praga, was to be avoided.
  36. To emphasize observance of the requirements of international usage in respect to non-attack of civilian populations, a requirement stated in the altered order, a verbal note was delivered to the Polish Embassy on 1 September to the effect that German air forces operating in Poland had been instructed to restrict their attacks to military targets.

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The third operational order from the Supreme Command arrived by teletype at midnight of 1-2 September and read as follows:

1. By order of the Commander in Chief steps will be taken to discover the whereabouts of the Polish bombers on 2 September, for which purpose adequate reconnaissance will be conducted from daybreak on so far as weather conditions permit;

2. First and Fourth Air Fleets will maintain bomber groups ready for an immediate take off to attack Polish bomber forces as soon as possible as their position has been determined;

3. As soon as weather permits units will be dispatched to attack busy ports without regard for the boundary line between the two airfleets;

4. No matter what the circumstances might be, the Fourth Air Fleet will attack Dublin. The attacking bombers will be given twin-engine fighter escorts.

At this time the Supreme Command was able to base itself on a more sound interpretation of the situation, after having received all reports on combat and reconnaissance activities of both air fleets. In particular, it had been

37. Fuehrungstab Ia # 4193/39, Karlsruhe Document Collection.



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realized in the meanwhile that the German attack had failed to strike the entire Polish air forces. This was why the GHQ reconnaissance group at the same time received the special order to establish the whereabouts of the Polish multi-engine bombers in the Krosno-Deblin-Luck-Stanislau area and report results immediately by radio to the Luftwaffe Operations Staff.

Finally, in the late evening on 1 September, Operation Wasserkante--the all-out attack against Warsaw--was cancelled for the second time, for reasons still unknown. It can be assumed as possible that it was realized that the Polish air forces were by no means completely annihilated and that, for this reason, it was necessary to concentrate all forces again on the second day for counter-air action.

After receiving the above directives and orders from the High Command, the two air fleets issued the appropriate orders to their units. The First Air Fleet ordered Luftwaffe Command Eastern Prussia to continue its counter-air operations and its operations in direct support of the Army as requested from time to time by the army field headquarters. Operations indirectly supporting the Army were to be conducted independently in the form of attacks on all troop movements and concentrations detected by the opera-



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operational air units. In addition bombing attacks were to be launched to render the radio stations at Thorn, Warsaw, and Posen inoperable. The 27th Bomber Wing was transferred to the command of the 1st Air Division immediately after returning from its attack mission.

The Second Air Fleet also ordered the 2d Division to attack the Polish air forces on the ground, to destroy hostile radio stations, and to continue operations in direct and indirect support of the Army. The Special Purposes Air Command was to continue independent action in direct support of the Tenth Army; additional elements of the 2d Air Division were dispatched against worthwhile targets in support of the Fourteenth Army and a liaison officer was dispatched by plane to Fourteenth Army Headquarters. The 2d Air Division committed its 76th Bomber Wing against the air port and radio station at Radom and the air ports at Mielec and Chorzelow, a bomber group from its 77th Bomber Wing--escorted by two

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squadrons from the 76th Twin-Engine Fighter Wing--against the air port and radio station at Lodz, and the 4th Bomber Wing against the air ports at Deblin and Lublin. From 0500 on two groups of the 77th Bomber Wing were to be kept under constant alert for operations in direct support of Army Group South. Judging by the time they were issued, these two orders were in implementation of Directive # 1 of the Commander in Chief of the Luftwaffe dated 1455, 1 September.

The reconnaissance results obtained on the first day provided the basis for the detail assignment of targets and for air operations as a whole on 2 September. These results have been compiled in special lists.<sup>38</sup> Two significant facts can be deduced from these compilations which are of importance in assessing the situation and the decisions regarding coming operations: (1) 14 airfields were detected with at least 240 aircraft on them, most of them in the command zone of the First Air Fleet; (2) in the entire area of operations at least 25 airfields were definitely established without any aircraft on them.

Although operations were seriously handicapped on the first day by unfavorable weather, particularly by patches of fog, adequate data was secured for the planning of counter-

<sup>38</sup>. Appendix 27. For better intelligibility, reconnaissance reports for the 1-9 Sep period have been listed chronologically.

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air operations. In the night of 1-2 September weather conditions improved and the clouds began to clear. In the southern areas, however, operations of the Fourth Air Fleet were curtailed by ground fog early on 2 September, which prevented the take off of units until 0900. Later in the day low-hanging clouds complicated reconnaissance in all areas.

The situation on the ground is revealed by the situation report for 1 September,<sup>39</sup> issued at midnight. According to this report German ground forces had penetrated 12 miles into Polish territory on an average, in most cases without encountering serious resistance. Only the I Corps of the Third Army was halted by strongly developed positions north of Mlawa. Other data for the drafting of operational orders to the air units was provided by the operational reconnaissance reports on the early morning of 2 September. These reports revealed clearly that there were no aircraft on the airfields at Debica, Moderovka, Torosovka, Luck, Broszany, Basiefka, Sandomierz, and Mielec. Two twin-engine and two single-engine aircraft were reported on the Skitnov airfield. Reconnaissance conducted later in the day showed that aircraft were on only three Polish airfields.<sup>40</sup>

The pattern of air operations on 2 September was as



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follows: The day started with a clearly defined concentration on counter-air operations, a circumstance which changed later in the day. Talking strictly in numbers, the missions flown during the day can be broken down as follows: In bomber, and dive-bomber forces the First Air Fleet committed 110 aircraft in counter-air missions, 325 in direct, and 45 in indirect support of army operations; and 95 in support of naval operations; the Fourth Air Fleet committed 254 aircraft in counter-air operations, and 295 in direct support and 125 in indirect support of the Army. All in all the First Air Fleet committed 1,575 and the Fourth Air Fleet 4,674 aircraft in operations of these two types.

The ratio of aircraft committed in counter-air operations to aircraft committed in support of the Army and the Navy was thus lower than on the previous day: out of a total of

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39. Appendixes 28 and 26.

40. Twenty aircraft were detected at Deblin-Golap, 13 single- and 17 twin-engine aircraft at Warsaw-Okecie, and 20 at Strassburg.

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1 247 missions flown by the units of both air fleets only 364, or 29 percent, were counter-air missions (at First Air Fleet 20 percent, at Fourth Air Fleet 38 percent). The reason for the secondary role of counter-air operations on the second day of the campaign was no longer one of scattered effort, but mainly one of a lack of real targets for such operations.

On 2 September the overall air situation within the entire Polish theater was as follows: Again, Polish bombers were not in evidence at all. This statement is not altered by the fact that a few bombs were dropped on German territory in Silesia--without doing any damage--since they apparently were dropped by Polish reconnaissance planes operating singly. Compared with the previous day, attacks by Polish fighters were less frequent, by smaller units, and more cautious, and resulted in eight Polish fighters downed.

Units of the First Air Fleet committed in counter-air missions attacked the airfields at Kutno, Lida, Wilna, Bialystok, Brest-Litovsk, and Biala-Podlaska, setting sheds and fuel installations on fire. Units also attacked the airfield at Warsaw-Okezie and the State-owned aircraft factories located there. Those of the Fourth Air Fleet attacked the airfields at Lodz, Dablin, Radom, Lublin, and

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Fourth Air Fleet. As on the previous day, the units committed in direct support of the Army again concentrated on the area of the Tenth Army, in the area of main effort. Here, the units of the Special Purposes Air Command were dispatched in continuous missions mainly in support of the 1st Panzer Division advancing on Radom. Concurrently, units protected the right flank of this important spearhead division against surprise attack. Repeated attacks also were

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42. In this area particularly in the Tucheler Heide (heather).  
43. In order to clarify the situation the Commander in Chief of the Luftwaffe at 1245 ordered reconnaissance of rail routes, roads, and troop concentrations in the Konitz-Graudenz-Posen-Behtschen area.



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reported 10-12 aircraft destroyed at the last named field.

In addition, 50 aircraft were reported damaged on the run-

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ways at Deblin, and hits were reported on the aircraft factory at Mielec. On the evening of the second day of the campaign it could be assumed with safety that the Polish air forces no longer represented an important factor in the Polish conduct of operations, although nothing definite had been established as to the whereabouts of these forces.

The surprisingly quick establishment of air supremacy by the Luftwaffe in the entire Polish theater soon made it possible to place main emphasis in air activities on operations supporting the advance of the German ground forces. This was done already on the 2 September, and this shift of emphasis in air operations coincided in time and causatively with the clearly defined development of areas of main effort in the operations of the Army.

In direct support operations the shift in emphasis took the following form:

First Air Fleet. During the day the bulk of the air forces, beginning with the units of the 1st Air Division, were committed in steadily increasing numbers against the

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41. Appendix 29: Air Photo.

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Polish forces on the ground (vehicle columns, concentrations, marching troops, withdrawing troops and even fortified positions) in the Polish Corridor<sup>42</sup> to support the German Fourth Army in its breakthrough towards Eastern Prussia and the Vistula River. In the early forenoon already Army Group North had informed Luftwaffe Command Eastern Prussia that the Polish forces evidently were on the point of evacuating the Corridor and withdrawing towards Graudenz. Thereupon, air units operating from Eastern Prussia also immediately dispatched elements to attack the withdrawing Polish troops in this area of main effort. This development in the situation even influenced the Commander in Chief of the Luftwaffe to shift main emphasis for the GHQ reconnaissance squadrons to this area. This measure is indicative of the shift in top level planning from operations to tactics.<sup>43</sup> In the northern areas, the emphasis in air operations on the 2 September had thus already clearly shifted to support of the Army operations. So far as indirect support for the Army was concerned, the air fleet restricted itself to a few missions against rail depots, rail routes, and transport movements, particularly east and southeast of Eastern Prussia. The units of Reinforced Wing Kessler, however, remained involved in action in the Baltic around Danzig.



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directed against Polish retrograde movements in the general area of Chencstochau and south of Radomsko, and against Polish troops detraining around Piotrkov. The bulk of the air forces were committed north of the Warthe River. This action again was taken by the Special Purposes Air Command on its own initiative because the individual requests by army commands appeared unfounded and at times even senseless. Fighters on roving missions over Lodz shot down three Polish aircraft. On the second day of the campaign sizable elements of the 2d Air Division also participated directly in combat on the ground. On the whole, however, more indirect support missions were flown than farther north, in the zone of the First Air Fleet. Thus, rail depots, rail junctions, trains, ammunition factories, radio stations, cross-roads, and bridges offered a profusion of worthwhile targets. A well defined area of main effort developed in the general area of Tarnov-Krakov, where numerous railway trains were taken under attack to facilitate the advance of the Fourteenth Army.

A new departure in almost all air missions against ground targets by the forces of both air fleets was the breakdown of both bomber and dive-bomber units into their smallest sub-units, down to the level of the flight, with



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squadron size missions gradually becoming the general rule.

Besides the bomber and dive-bomber forces, fighter and twin-engine fighters at this stage also commenced participating in the ground operations by means of low-level attacks, thus increasing the effectiveness of the high-altitude attacks.

A highly important feature of developments in the air situation was that twin-engine fighters could now participate in ground combat. They were no longer required to escort bomber units on long-range missions, although a few of these missions were still flown with escorts on the second day.

In comparison with army support activities the missions flown against targets assigned by the Commander in Chief of the Luftwaffe, such as radio stations, played only a minor role. Most of them were executed in combination with local operations against other targets.

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The main targets attacked on the second day were as follows:

In First Air Fleet zone.

Unit	Targets attacked	
	Long-range missions	Tactical
1st Gp, 152d Wing	Rail depot at Bromberg	Numerous rail depots, rail sections, and bridges in the Polish Corridor area and already within the ground combat zone
2d " 26th Wing	Vistula River bridge at Fordon	
1st " 2d Bomber Wing	Troop trains at Suwalki rail depot and between Austovo and Grodno; Novy Dvor rail depot	
27th Bomber Wing	Rail depots and installations at Wreschen,	

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<u>Unit</u>	<u>Long-range missions</u>	<u>Targets attacked</u>	<u>Tactical</u>
27th Bomber Wing --cont.	Kutno, Konin, Wengrowitz; Polish infantry engaged in combat.		

In Fourth Air Fleet zone.

4th Bomber Wing	Rail section Krakau-Tarnow (one transport train derailed)		
77th " "	Rail depots Lovicz and Kutno (set on fire)		
76th " "	Rail routes from Radom to Deblin and Warsaw (One B-17 plane reported especially effective hits on part of the Skarzysko-Kamienna ammunition factory)		
1st Bomber Gp of 1st Tng Wing (Eastern Prussia)	Night attacks against Netze Canal bridges to interdict Polish southeastward withdrawal from Corridor area; squadron-size night attack against Warsaw-Okecie airfield. <sup>45</sup>		

44. Since a number of radio stations, such as those at Lodz, Krakau, and Radom, remained silent after the day on which they were attacked, the bombing can be assumed to have been successful.

45. In view of the fundamental importance of these first night attacks, the subject will be dealt with separately in Chapter 8, pp. 143-4.

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By evening on the second day air reconnaissance produced some results which were of significance in the issue of orders for the next day of combat. The reports concerned the strength of Polish airforces at various airfields and of the Polish anti-aircraft defenses. In the zone of the First Air Fleet 7 airfields were reported vacant; in that of the Fourth Air Fleet aircraft were reported on 5 airfields and 15 airfields were reported vacant. The runways on three of the latter were to be destroyed. Polish anti-aircraft artillery forces were detected only in the zone of the Fourth Air Fleet, particularly around Dablin, Radom, Warsaw, Lodz, Chenshochau, and Tarnov.

In broad outline, the results of the second day of air warfare can be summarized as follows: The situation as interpreted at headquarters of the Commander in Chief of the Luftwaffe on the evening of 2 September was stated in the situation report issued by this highest air command agency. The report opened with the statement that, as on the previous day, the superiority of the German over the Polish air forces had not been in jeopardy for a single moment. Through its attacks against the Polish ground service installations the Luftwaffe made further progress in driving the Polish air forces from their peacetime air bases, in reducing their



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combat capabilities seriously by compelling them to disperse to generally unprepared airfields, in decisively disrupting their command and general communications networks, and in inflicting on them heavy personnel and materiel losses which could hardly be replaced from Polish resources. The impression of the first day remained confirmed. The assumption that the Polish air forces on the second day of warfare might take an active part in combat in accordance with a new plan and new tactics and with new forces had not materialized. It seemed definitely established now that Polish air power as a means of combat available to the Polish High Command no longer existed in a form meriting serious consideration. The realization that this implied uncontested air supremacy over Poland logically produced in the German command and troops a feeling of psychological, personnel, and materiel superiority. The troops had passed their first test by fire and, quite justifiably, did not concern themselves much with the problem of the reason for their quick and complete success. The feeling of superiority over any possible opponent, which now had been proved and to which they had been trained, strengthened the morale of the troops and their confidence that they could master all missions assigned them. This



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spirit of confidence was increased even further by the relatively small cost in losses at which success had been achieved. The command, educated to and biased in favor of operational warfare, considered the results of the first two days of combat as complete confirmation of its command theories. The fears of the previous day that a serious scattering of effort might have to be expected had not materialized: the concept of main effort against the Polish air forces and their ground service organization had remained in the foreground. The small numerical strengths employed against actual counter-air targets did nothing to disprove this fact but served rather to prove that the opponent had already been eliminated to a large extent. If it is found in retrospect that the air successes had been achieved against an opponent inferior in every way, this finding in no way detracts from the performances and fame of the command and troops.

However, the successes of the second day of warfare should not be appraised from the viewpoint of the Luftwaffe alone. They should be appraised from the higher vantage point of cooperation between all three branches and thus from the viewpoint of the overall conduct of the war. Viewed from this angle confirmation of the decisive effects of



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the Luftwaffe success comes again from an army source:<sup>46</sup>

One important result of the successful operations of the Luftwaffe was that the Polish command no longer was able to complete its mobilization according to plans or to carry out any sizable strategic movements by use of rail transportation, and that the Polish command was rendered almost completely powerless from the outset through the serious damage done to the Polish signal communications networks.

The Wehrmacht Bulletin for 2 September in turn confirms the large contribution of the Luftwaffe to the successes achieved in this day of combat.<sup>47</sup> The passages relating to the Luftwaffe read as follows:

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46. von Tippelskirch.

47. For complete text see Karlsruhe Document Collection.

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Today the Luftwaffe delivered lightning-like and powerful blows against military targets in Poland. Numerous Polish aircraft were destroyed in air combat. On the ground a large number of military air bases were taken under attacks, in particular at Gdynia, Krakau, Lodz, Radom, Dablin, Brest-Terespol, Lublin, Luck, Gostab, Warsaw-Okęcie, and Posen-Lavica.

Polish aircraft in hangars and on runways were set on fire.

In addition, installations were destroyed and military transport trains derailed on the most important rail routes, and troops marching to the rear were bombed.

Following an air attack, the Skarysko-Kamienna ammunition factory exploded.

After today's successes the Polish air forces can be assumed to have suffered seriously in substance.

The Luftwaffe maintains absolute air supremacy over all Polish territories, and is now available for other missions in defense of the Reich.

In retrospect it can be confirmed that by the end of the second day the Luftwaffe had almost completely executed its first main mission, that of neutralizing the opposing

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air forces and destroying them and their ground service organization. From the third day of the campaign, 3 September on, emphasis in air operations thus could be shifted completely to support of the Army.



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## CHAPTER 4

3 SEPTEMBER

## MAIN EMPHASIS ON SUPPORT FOR THE ARMY

Basing his decisions on the interpretation of the situation on the previous day, the Commander in Chief of the Luftwaffe issued a number of directives and orders in preparation for operations on 3 September. The first of these was a warning order issued already at 1335 on the previous day: "Attacks against aircraft industry. Details to follow. Then, continued action against hostile air forces and in support of the Army according to reconnaissance results."<sup>48</sup> These instructions to attack the Polish aircraft industry, obviously intended as a major mission, established an entirely new operational objective, which in no way could be brought into inherent relation with the actual developments. At the time when the order was issued these developments were already clearly obvious. If for no other reason, action against the Polish aircraft industry at this juncture was a completely senseless undertaking because the Blitz warfare methods planned and executed would have stopped the Polish aircraft production automatically. Orders for special

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48. Ob. d. L., Fuehrungstab Ia # 4195/39, g., Karlsruhe Document Collection.

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missions against these targets necessarily would lead to a further scattering of effort and to the destruction of highly important factory installations which were to be consolidated with the German war potential in a short space of time. For reasons unknown the warning order was cancelled three hours after issue.

The final directive for the two airfleets also was issued on the previous day, at 1635<sup>49</sup>, and was more in keeping with the current situation. It read as follows:

On 3 September First and Fourth Air Fleets will conduct intense reconnaissance to establish whereabouts of hostile air forces and detect road and rail movements. All bomber and dive-bomber forces and the greatest possible number of twin-engine and other fighter units will be maintained ready for early dispatch in accordance with reconnaissance reports. Only airfield on which a large number of aircraft are detected will be attacked. The strongest possible forces will be committed against troop movements. Long-range fighter missions will be avoided. 27th Bomber Wing will be held available to the Commander in Chief of the Luftwaffe and under constant alert. Direct signal communications will be established.

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According to this directive, counter-air operations were still considered important, but attacks were to be directed only against worthwhile targets detected by air reconnaissance. Emphasis was shifted unequivocally to Army support. Here decisive importance was attached for the first time to air reconnaissance, and units held ready for the purpose were to be dispatched only on the basis of reconnaissance reports. Why the Commander in Chief of the Luftwaffe assumed immediate control over the 27th Bomber Wing is unknown. At 2140 on the previous day the wing received the following order:

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49. Directive # 2 for First and Second Air Fleets, Fuehrungsstab Ia # 4196/39, Karlsruhe Document Collection G 5/1.
50. Order to 27th Bomber Wing, Fuehrungsstab Ia, # 4200/39, geh., Karlsruhe Document Collection, G.



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27th Bomber Wing, under direct command by Commander in Chief of the Luftwaffe on 3 September, will maintain such stage of alert that it can take off against movements in Polish rear or against airfields reported in operation within one hour after receipt of tactical orders from 0700 hours on. Reconnaissance by GHQ units. Probable target area: Gnesen-Krotoshin-Lodz-Vloklavek. Telecommunications with Luftwaffe Operations Staff have been established. Call signals, frequencies, code chart in use, and available code group for GHQ reconnaissance will be transmitted through GHQ message center.

The area designated as the probable target area was in the western bulge of the theater of operations, <sup>east of Posen,</sup> approximately half of it in the command zone of the First Air Fleet and the other half in that of the Fourth Air Fleet. The order necessarily led to confusion in the matter of command responsibilities, since the two air fleets were not relieved of their responsibility for combat and reconnaissance activities in the area. Furthermore, the area of operations for the bomber wing did not constitute an area of main effort within the overall pattern of operations, on the contrary it was to be left uncovered from the operational viewpoint. It appears that the Commander in Chief of the Luftwaffe himself later

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was no longer convinced of the necessity for and practicality of this special arrangement, since the bomber wing reverted to the First Air Fleet for its first mission.

Also on the evening of 2 September the Luftwaffe High Command issued a number of special directives to the First and Fourth Air Fleets, but they contained nothing new of importance. However, they are nevertheless of interest, because they dealt almost exclusively with matters of Luftwaffe-Army cooperation and with measures to preclude the misunderstandings which had arisen in such cooperation in the past. <sup>51</sup>

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51. These special directives will be found in the original wording in Appendix 30.

The orders and directives issued by the Commander in Chief of the Luftwaffe and hitherto quoted reveal in essence that emphasis in air reconnaissance and in the assignment of targets for air attack had shifted to support for Army operations. Counter-air targets were to be attacked only if reported by air reconnaissance as worthwhile. Such worthwhile targets would have included primarily Polish airfields on which multi-engine aircraft were stationed. This modified operational concept is clearly evident from an entry in the Luftwaffe Operations Staff War Diary stating the reasons for the final directive to the two air fleets.<sup>52</sup> The train of thought expressed there probably was also the reason why the Commander in Chief of the Luftwaffe on the previous evening informed the Wehrmacht High Command of his intention, for operations on 3 September, to commit the largest possible forces against Polish troop movements and that for this purpose one bomber wing would be held available to him from daybreak on for "immediate commitment in support of the Army."

The Wehrmacht High Command was obviously glad to accept this offer, but proceeded to give the new concept of power concentration a more definite form in a Fuehrer directive.

<sup>52.</sup> Appendix 31.



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Shortly after midnight the Wehrmacht High Command informed the Commander in Chief of the Luftwaffe of the desire of the Fuehrer and Supreme Commander that "main emphasis was to be placed on air attacks against troop and other movements in the Polish rear. In the first place, troop transports crossing the Vistula River bridges at Thorn were to be attacked; the bridges, however, were not to be destroyed." Since this latter requirement had been stated already in a directive of the previous day, the Commander in Chief of the Luftwaffe merely added to the Fuehrer Directive the remark that bridges were to be attacked only with fragmentation bombs in order only to disrupt traffic. Another basic order required that attacking aircraft should avoid destroying manmade structures and should not do too permanent damage to railroads so as not to interfere with the rapid advance of the German armies. The slogan now was to disrupt Polish rail traffic, not to destroy Polish railroads. In practice the dividing line between these two missions was difficult to find.

In accordance with the basic directives from the Commander in Chief of the Luftwaffe, the commander of the two air fleets issued their own orders and directives to their units. The First Air Fleet ordered the First Air Division

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and Luftwaffe Command Eastern Prussia as follows:

All available reconnaissance units will be employed to their utmost capacity to determine the whereabouts of the Polish air forces and detect Polish rail and road movements. Very close integration with army reconnaissance activities is essential. All bomber and dive-bomber units and the greatest possible number of twin- and single-engine fighters will be maintained in a stage of readiness which will permit their immediate commitment in close cooperation with army command agencies on the basis of reconnaissance results. Reserves will be held ready for direct support of the Army. Main emphasis in these support operations will be around Graudenz and Mlava.

The following additional order was issued regulating the operations of the air units in detail:

Counter-air operations will be restricted to attacks against particularly heavily occupied Polish air ports. The strongest possible forces will be committed against Polish troop movements. Special importance is attached to the prevention of flank threats and to the destruction of withdrawing Polish troop columns.

The operational order issued by the Fourth Air Fleet to its units read as follows: in its opening passages:

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The air fleet will attack.....detected rail movements, marching columns of all types, and detected Polish air units; with the units designated for such purposes, it will support the Army advance; and will continue to maintain its secured air superiority and expand it to new areas.<sup>53</sup>

In the instructions which then followed for the Second Air Division, three points are of particular significance: (1) the main effort was in the same area which was designated as the area in which the 27th Bomber Wing--under direct command by the Commander in Chief of the Luftwaffe--was to operate, and the purpose of operations was destroy or halt transports from the general area of Posen in the direction of the front or flank of the Tenth Army, the German main attack army; (2) the renewed scattering of the German air effort and of air targets is obvious; and (3)<sup>54</sup> reference to the Soviet radio station at Minsk justifies the assumption that from the very outset of the Polish campaign the Soviets had made their radio stations unobtrusively available to the Luftwaffe as navigational aids.

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53. For complete text of Fourth Air Fleet operational Order see Appendix 32.

54. Appendix 32, Par. 6.



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While the Luftwaffe thus had at least one radio navigation beacon behind the hostile front--and on still neutral terrain--measures were taken in German territories to complicate the use of German radio stations by hostile aircraft for navigational purposes. Thus, it was decreed that German radio stations in eastern Germany, approximately east of a line extending from Rostock-Halle on Saale-Hof (Bavaria)--would cease operating immediately on orders from the air observation centers.<sup>55</sup> From the wording of this decree

it is obvious that the Luftwaffe High Command still considered it possible that hitherto undiscovered Polish air forces existed which might undertake an attack against the Luftwaffe or a surprise operation against German territory.

The Wehrmacht High Command interpretation of the Polish military situation was, according to the situation report issued at midnight, as follows:

Recognized and in part assumed disposition of Polish forces:

Opposite German

Fourteenth Army: 13 divisions, 1 cavalry and 1 motorized brigades

Tenth Army : 7 divisions and 1 cavalry brigade

Eighth Army : 3 divisions

Fourth Army : 3-4 divisions and 1 cavalry brigade

Third Army : 8 divisions and 2 cavalry brigades

55. Text of order in Karlsruhe Document Collection.

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Another force of approximately eight divisions and four cavalry brigades was assumed at the Lithuanian border and in the Ukraine. The Wehrmacht High Command assumed the possibility that the force hitherto known as the Posen Army (eight divisions and one cavalry brigade) might have been transported east or southeast available to the Polish High Command.

The appearance of this last point in the situation report at so early a stage is remarkable. Its effects were expressed in the previously mentioned reconnaissance and attack activities ordered by the Luftwaffe High Command, and it was again to exercise an influence in the critical situation which developed a few days later at the German Eighth and Tenth Armies, where the Luftwaffe was destined to find an opportunity for decisive participation in both air and ground combat.

A deciphered radio message from the Polish rail traffic management center at Lvov provided valuable information on conditions in the Polish rear. The message read:

For Radom reroute through Rodzadow , 24 miles southeast of Sandmierz. "Alexander"<sup>56</sup> transports already between Przeworsk and Debica will be redirected to "Radomska"<sup>57</sup> through Soboff-Sandmierz, Transports already through Debica will be recalled and directed to Sandmierz or through Krakau.

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56. and 57. Code designations.



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This was confirmation from a hostile source of the success achieved by Fourth Air Fleet units in their attacks on targets in the area. Dispatch of the message by radio also revealed that the attacks had achieved an important concurrent effect, that of the destruction of above ground telephone lines. In many cases the Polish Army High Command thus had to rely exclusively on radio and courier services, which seriously complicated the uniform control of military operations.

On the German side, the air and ground situation presented very much the same picture as on the previous day. 58 The German armies were continuing their brisk advance, and there was no change in the air. In spite of a close net of air reconnaissance no trace had been found of the Polish air forces, and it was assumed, therefore, that they were distributed on numerous emergency airfields and thus no longer capable of any concentrated effort. The rapid advance of the German ground forces necessitated the forward displacement of certain air units, some of them to airfields in Poland, already on the morning of 3 September. This applied in the first case to the dive-bomber and ground-attack units of the Special Purposes Air Command. 59 Two groups moved from the west (Second Air Fleet) under the 55th Bomber



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Wing to the Fourth Air Fleet were assigned by that air fleet to the 2d Air Division and transferred to airfields at Rosenhorn and Ohlau in Silesia. Operational air reconnaissance of Polish rail traffic already at 0950<sup>60</sup> reported large eastward movements on the Ostrovo-Lodz route. This report was confirmed by strategic reconnaissance units of the Fourth Air Fleet, which reported heavy rail traffic, with trains travelling in close sequence, from Posen towards Warsaw.

As on the previous day, the two air fleets acted separately in executing the missions assigned to the Luftwaffe.

In the command zone of the First Air Fleet, indirect

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58. Appendixes 26 and 27.

59. It is not possible to establish definitely whether the 55th Bomber Wing was transferred to the east with 2 or with 3 groups; according to available records, it appears to have had only 2 groups initially.

60. Radio message from GHQ reconnaissance squadron.

59

support for the Army took the following form. On the basis of reconnaissance reports received in the early morning, the Commander in Chief of the Luftwaffe returned the 27th Bomber Wing to the air fleet command for action against the reported transportation movements. This renunciation by the Commander in Chief of the Luftwaffe of his original plan for the commitment of this bomber wing is inexplicable, since both transportation movements were reported precisely in the specified probable area of operations of the wing, with the one movement, the southern, even leaving the operational zone of the First Air Fleet in an easterly direction. Nevertheless, the wing was returned to the First Air Fleet. Under orders from the air fleet<sup>61</sup> the attack by the 27th Bomber Wing was carried out as follows: Wing Headquarters (under Commodore Colonel Behrendt) first sent its headquarters squadron on a target reconnaissance mission, with instructions to radio its findings. On the basis of the radio messages thus received, the wing committed all three of its groups in the course of the afternoon. The wing after-action report is revealing in several respects.<sup>62</sup>

Concerning air defense, all three returning groups reported

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61. Karlsruhe Document Collection.

52. Abridged version in Appendix 33.



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having encountered Polish defenses, but that the Polish fighters gave little evidence of aggressiveness. All target areas were defended by antiaircraft artillery, and seven aircraft were struck by artillery fire. From the unit reports it can be assumed that they found and attacked their assigned rail targets. A remarkable point is the long time of 7 hours and 40 minutes which elapsed between the first reconnaissance report and the last action in the target area. This was due to the time required for local target reconnaissance, relay to the units, evaluation of radio messages, drafting and issue of orders, take off, assembly in the air, and approach flight. Another factor to be remembered is that the railway trains detected and assigned as targets were encountered much farther east than expected, namely

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immediately before Warsaw.

The Polish fronts had become fluid, and rail movements for troop transportation required in operational regroupments became increasingly prominent. For this reason, a number of air units were committed in further rail interdiction missions in the northern near front areas, with support from two groups of Luftwaffe Command Eastern Prussia operating from north against the same rail system.<sup>61</sup> On the previous day

63. See Appendix 34 for outline map of target area for the 27th Bomber Wing.

64. Presented in outline map in Appendix 35.



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the Fourth Air Fleet, in the south, had been highly successful in the execution of similar rail interdiction missions.

On the third day of combat the First Air Fleet was active in two separate areas of attack: (1) in the general area of Warsaw, far from the combat areas in ground operations, and (2) in the Thorn area, and very close to the fronts on the ground. The missions flown by the 27th Bomber Wing in the Warsaw area thus can be regarded as strategic action against a hostile troop transportation movement, while the activities of the other attack units can be considered as tactical action against rail depots, rail routes, and rail transport movements. The location of the westerly group of targets reveals clearly the intention here to break up a new transportation movement: the assembly, entraining, and movement from the front, the Polish Corridor, of Polish troops. The easterly group of targets, in turn, is indicative of action against a transportation movement from Posen in general already in progress for some time. Operations against these two groups of targets obviously resulted from a uniform plan of attack thought out by the air fleet. In many cases all of these attack missions were executed by squad-size units and the results achieved were expressed in unit reports on destroyed rail depots, bombed and shelled

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railway trains--loaded and empty--, explosions in railway trains and railroad installations, cut rail routes, derailed trains, and so forth. The only Polish defense encountered was artillery, infantry weapons, and machine guns firing from the ground. The machinegun fire was remarkably accurate, but resulted in no total losses for the attacking German units.

The emphasis in strategic reconnaissance now also shifted to rail and road reconnaissance. The GHQ squadrons at 1230 received orders to also keep rail traffic in the Brest-Baranovitch-Vilna-Grodno-Lomza-Bialystok area under observation. Heavy traffic was reported in both directions on the Warsaw-Bialystok route and in the Siedlce, Suwalki, and Grodno rail depots. It thus appeared that two simultaneous transportation movements were taking place in opposite directions in the northern areas of the theater. The one was the movement of defeated Polish forces from west to Warsaw, the other apparently a movement of new Polish forces from the northwestern territories of Poland also towards Warsaw. This brought Warsaw into the direct orbit of combat operations already on the third day of the campaign, although the fronts on the ground were still far distant.

At this juncture only four rail routes in Poland were



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still of strategic importance, which crossed the Vistula River at Krakow, Sandomierz, Dablin, and Warsaw. In the northern half of Poland, however, Warsaw is not only the most important rail junction but the key point of the entire railroad system. All important routes from west and east converge here on the large railway bridge across the river at Warsaw. Every Polish attempt to carry out a strategic regroupment of forces, no matter in what direction, would have to depend primarily on the rail system in and around Warsaw. Thus, if rail traffic through Warsaw were blocked, this would necessarily spell failure in any future large-scale military movement by the Polish side which had to make use of rail transportation. From this viewpoint the operations initiated on 3 September in the zone of the First Air Fleet against the Polish rail system are of particular significance. Operations on the following days against the Polish rail networks must be viewed and assessed from the



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same viewpoint.

The second air mission was that of indirect support for the Army. Here, the air units were employed almost exclusively on the basis of local air reconnaissance and on the direct initiative of the air fleet, since requests from army commands usually arrived too late for air action before the situation requiring such action had changed. These circumstances necessarily led to an increasingly close cooperation between the Luftwaffe and the Army, particularly at the intermediate and lower levels of command. The lower level union (liaison par le bas) which now gradually developed soon took the place of unified control from above, which was hardly possible any longer because of the fluctuating ground situation, the rapid advance on the ground, and the integration of the front sectors which was beginning to take place. At the latest on this day of the campaign, the Luftwaffe thus assumed the role of the "extended artillery arm."

Two areas of main effort evolved on 3 September in these operations. One was in the Polish Corridor and the adjacent areas east of the Vistula River up- and downstream from Graudenz. Here, the 1st Air Division was committed west and elements of Luftwaffe Command Eastern Prussia east of

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65. More details in Part 1, p. 26.

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the river. The second area of main effort developed at Mlava, south of Neidenburg, where the bulk of the units operating from Eastern Prussia were committed.

To support the German Fourth Army five groups of the 1st Air Division were committed. Of these, two dive-bomber groups tied up in naval support missions at Danzig-Gdynia on the two previous days played a decisively important role. In repeated high and low-level attacks, particularly the latter against the Polish forces enveloped in the Polish Corridor, the units inflicted heavy losses, and increased the existing confusion, panic, disintegration, and disorderly retreat movements of the Polish troops in the entire corridor area. According to reports from the First Air Fleet the rapid advance by the Fourth Army towards the Vistula River after the morning air attack was made possible mainly by effective support from units of the 1st Air Division.

Luftwaffe Command Eastern Prussia committed altogether 25 squadrons in 11 direct support missions, some group and some squadron size. Two clearly defined areas of main effort developed here. East of the Vistula River the 3d Bomber Wing participated in the ground operations in ten squadron size attacks on either side of Graudenz. These actions not only supported the Third Army forces



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directly, which were advancing southward from southwest Eastern Prussia, but also provided indirect support for the Fourth Army forces operating in the Polish Corridor area. The wing intervened in ground battle repeatedly in high and low level attacks east and south of Graudenz directed at Polish troop concentrations of all types, artillery positions, and, at Briessen-Rheden, <sup>against</sup> a Polish division brought in for a flank attack designed to relieve the pressure on the rest of the Polish front. This division was completely scattered. The Third Army expressed its full appreciation for the action of the wing, which had decisively influenced the situation of the army. In these operations the wing lost one aircraft. Another aircraft made a forced landing between the fronts, but its crew members were able to reach the German lines.

However, the main effort in all attack from Eastern Prussia was in the Mlava area, where 15 squadrons were committed. The German Third Army in its drive from Eastern Prussia in the general direction of Warsaw had been brought to a halt as far forward as ahead of the permanently developed fortifications around Mlava. Heavy fighting developed on the ground here, and the Luftwaffe was then called upon to open a breach for the continued advance. In the morning all



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units remained grounded by weather conditions, and it was only around midday that they could take off to the attacks for which they had been waiting since daybreak. Most of the attacks were at low level, and were decisively effective in these areas. Whereas the aircraft committed in the Vistula River bend area on both sides of the river attacked ground fronts already fluid, the air attacks around Mlava were against Polish forces still resisting in fortified positions. Although more easily detected, the targets here were less worthwhile than in the Vistula River bend. At Mlava the fronts had frozen temporarily to the conditions of position warfare and the mission of rendering the Army effective support in such a situation was something entirely new and unaccustomed for the air units. The solution of this difficult problem called not only for a flexible command but also for smoothly functioning technical signal communications of all types and for exceedingly close Luftwaffe-Army cooperation. The 1st Air Wing, the 2d Bomber Wing, and the 1st Group of the 1st Dive-Bomber Wing participated in the battles around Mlava. Here, they were required to attack numerous hitherto unfamiliar targets, such as earthwork

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positions, bunker lines, fortified positions in the outskirts of towns and villages, houses defended with machinegun fire, assembled tactical reserves, troop columns resting and in movement, sections of forest in which troop concentrations were suspected, and in particular the city of Mlava as the center of this entire system of fortifications.

Since direct cooperation between small air and ground units in ground combat could only be perfected slowly, critical situations developed repeatedly, particularly when the German advance was first resumed, in which friendly troops were frequently endangered by air operations. Thus, in one case a bomber group was unable to determine the results of a ground attack against Mlava, because the smoke and dust caused by a preceding dive-bomber attack made it impossible to recognize the target. It thus remained uncertain whether Mlava at this moment was occupied by German or Polish troops. In another case the command at the last moment was able to halt a bomber group dispatched to bomb Mlava and redirect it to another target, since reports had it that German troops meanwhile had taken Mlava. Again in another case the I Corps followed up two successful dive-bomber attacks against bunker positions by an attack on the ground. The attacking



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made were not in vain, however, and by evening it became evident that the air action in this area had produced a decisive success: the German advance had been set in motion once more.

On this day of battle the initially assigned primary mission of the Luftwaffe, namely counter-air action, had receded completely into the background. Only one mission was flown against an air force target, namely, against the Warsaw-Okęcie airfield. During the afternoon operational reconnaissance had reported 17 multi- and 13 single-engine aircraft on the airfield, and the German aircraft attacking in response to this report--the 3d Group of the 1st Air Wing escorted by twin-engine fighters--set two hangars on fire, exploded a fuel depot, and caught Polish aircraft in the act of taking off. Air battles developed against Polish fighter squadrons over the target area, in which three PZL Polish fighters were definitely and two others most probably downed. The attacking German units lost one plane. On the whole the Polish fighters remained passive and German airmen considered their aggressiveness low.



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ground troops jumped off just as the next wave of dive-bombers was in the air on the way to attack the same target. Fortunately, radio messages reached the dive-bombers in time to divert them to another target. Similar cases were frequent in all areas of this front, and the experience thus gained naturally resulted in efforts to organize more firmly the initially improvised cooperation between Luftwaffe and Army units with a view to establishing a system which would guarantee closely integrated joint action by both branches no matter how complicated the current situation might be. This could be achieved only through the closest possible coordination at the lowest levels of command in both services. The cooperating unit commanders had to maintain constant very close contact: the bomber wing had to be in uninterrupted contact with the army corps, the bomber group with its infantry regiment. In no other area was it as clearly obvious on this day of battle as at Mlava that the young Luftwaffe had now become the extended arm of the artillery.

The Polish ground defenses were strong and inflicted losses on the German air units, which were particularly exposed to ground fire because of the necessity to operate at low levels owing to the low-hanging clouds. The sacrifices

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Other reconnaissance units reported sighting Polish fighters on the Rumbertov airfield and 15 Polish bombers on the Plock airfield. These were the first Polish bombers definitely detected by German planes and units were dispatched immediately to attack the airfield. However, they arrived too late, the Polish bombers had escaped in time.

In the command zone of the Fourth Air Fleet emphasis was the same as at the First Air Fleet. The first mission was to continue railroad interdiction and direct support for the Army. In contrast, no counter-air action was taken  
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at all. On the whole the pattern of operations and the results achieved were very similar to those in the zone of the First Air Fleet. Similar situations developed in both command zones, from which similar lessons could be learned. Operations against the Polish railroad system and against transports en route were conducted on the basis of reconnaissance reports. These reports showed the following traffic detected on the various routes:

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66. At least according to sources presently available. In general it can be stated here that considerably less source material is available on the southern areas for this day of battle than for the northern areas, and that what is available is less reliable. This is why the description of Fourth Air Fleet operations is so much shorter than in the case of the First Air Fleet.



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Krakau-Koenigsbuehle route	10 transport trains
Railroad depot Krakau	no traffic
Konin rail depot	200 railcars
Miechov-Krakau route	no transports
Krakau-Tarnov route	4 transport trains
Lodz, southeast exit	heavy rail traffic
Lodz rail depot	no traffic
Debicz	4 transport trains
Trzbinia rail depot	900 railcars
Kutno rail depot	approximately 1000 railcars
Kielce rail depot	on fire, congested, 550 railcars
at Kamienna	6 railway trains in close sequence
Auschwitz-Krakau-Przemysl route	heavy traffic in both directions.

The general impression gained from this compilation was one of varying but generally heavy traffic loads on the main routes. From the movement of traffic thus revealed, the Luftwaffe command rightly assumed that the retrograde movement from the Posen area had changed into a forward movement into the general area of Krakau. The command further assumed a new Polish Army concentration on the German south flank. This latter assumption proved incorrect, and it seems obvious that the interpretation of the situation arrived at by the Commander in Chief of the Luftwaffe on the basis of reconnaissance results obtained by both air fleets was also different. The air fleet dispatched a number of bomber



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units to attack the reported railroad targets.

In the southern sector the 4th Bomber Wing destroyed the rail depot north of Rzeszov, attacked a troop train south of Biel, cut the rail route from Tarnov-Debica at several points, set the Krakau rail depot on fire, and attacked factory installations. In the northern sector the 77th Bomber Wing,, escorted by the 1st Group, 2d Twin-Engine Fighter Wing, bombed Polish troop trains in the rail depots of Kamienna, Kielce, Jedrzejov, almost completely destroying the rail depots in the process. At other rail depots one ammunition train was exploded and one mineral oil and coal train was hit.

In direct support missions the Special Purposes Air Command continued to cooperate very closely with the German Tenth (main effort) Army, supporting the army's advance in the general direction of Warsaw through the continuous commitment of its air units. Following German seizure of Chencstochau and Radomsko, dive-bomber units bombed Dzialoszyn, ahead of the XVI Corps, Polish troop movements in the Dzunskaz? Vola-Lask area, and troop concentrations in a forest section at Mischoy and at the Piotrkov rail depot, which was destroyed in the attacks. The ground-attack group also took

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part in these attacks, scattering a Polish cavalry brigade.

Under the impact of these air attacks the process of dissolution evident among the Polish troops falling back before the German Tenth Army increased steadily. Since the Army commands, similarly to the previous day, made no requests for air support, all air strikes again were carried out on the initiative of the Luftwaffe commands. The 76th and 77th Bomber Wings attacked Polish troop columns withdrawing along a number of roads. The same two groups from the 2d Air Division broke up troop entraining operations at rail depots, and dispatched elements to attack Polish forces held up at detected road jams, where they inflicted exceedingly heavy losses and in some cases caused panics. In some parts the situation on the ground was unclear, so that it was not possible to avoid incidents in which friendly troops were bombed erroneously, as was the case at Biella. Such incident resulted in temporary friction between the Luftwaffe and the ground forces; however, relations improved again during the continued advance into Poland and the confidence of the ground troops in the Luftwaffe was fully restored.

*airlift*  
The first sizable air supply mission in the history of air warfare was carried out successfully on this day, when German transport aircraft carried 30 tons of fuel forward

*over*



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to the advancing 1st Panzer Division, restoring the division to full operability in the focal point of combat action on that day.

Under immediate direction by the Commander in Chief of the Luftwaffe the 100th Bomber Group in the night of 3-4 September carried out the night attack which had been planned for several days. The attack was directed at the MUN\* in the vicinity of Warsaw. The attack had no impact on current operations and will therefore be discussed in connection with other matters.

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The results of this day of combat can be summarized under a few headings: Absolute German air superiority over Poland was again confirmed; Only small numbers of Polish fighters were active; their action had no effect, and their aggressiveness evidently was even lower than before; Again, no Polish bombers were in evidence; The Luftwaffe now was able to commit almost its entire power in missions of direct and indirect support for the Army.

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67. See p. 144, bottom.

\* Ammunition processing depot.



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Strong forces were committed in missions of indirect support, such as preplanned attacks against static railroad targets and moving troop transport trains. The attacking air units succeeded in halting the transport movements, seriously damaging the rail sections in which the movements were halted, placing the entire Polish regroupment in jeopardy, throwing the entire Polish land army into confusion, and inflicting considerable losses in personnel and materiel. The impact of all this on the morale of the Polish troops was also severe.

Nevertheless, it was not possible to determine at the end of the day whether the planned Polish regroupments had only been disrupted or completely prevented. One fact was certain: for the first time in military history it had been possible to detect and take timely action against hostile regroupments on an operational scale far behind the fronts on the ground. However, the effects of the successful air operation of indirect support only became apparent in the following days through lessened Polish pressure at the front.

Direct air support, the second main mission on this day of combat, had contributed decisively towards the advance of the German Tenth Army. In addition the air action had prevented the escape of the Polish forces enveloped in the

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Polish Corridor and had completely shattered their powers of resistance, and the Luftwaffe had given new impetus to the German Third Army, the advance of which had bogged down. In these operations the control of local action and its effects on ground combat had shifted to lower levels. This was fully consonant with the existing situation and the exigencies of the circumstances. It was on this day of battle that real cooperation between the Luftwaffe and Army units and their commanders commenced.

In contrast, the objectives of operational air warfare had receded completely into the background by the third day of the campaign. Only very weak elements were committed to attack the state-owned aircraft factory at Warsaw-Okecie, the nitrogen works at Mielec, and the electric power station at Prusko. The attacks were directed by the Fourth Air Fleet and produced very small results. Conversely, tactical air warfare had come decidedly to the fore on this day.

The Wehrmacht Bulletin of 3 September<sup>68</sup> mentions air activities as follows:

After the decisive action by the Luftwaffe yesterday the air divisions of the two air fleets committed against Poland have unrestricted mastery of the skies

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over Poland and are again ready for action at their  
take-off bases. The units of the air fleets not yet  
committed in action are still ready for action in their  
air bases.

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68. For complete text see Karlsruhe Document Collection.



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## CHAPTER 5

4 SEPTEMBER

OPERATIONS AIMING PRIMARILY AT DESTRUCTION OF  
THE POLISH RAILROAD SYSTEM

As he had done on the previous day, the Commander in Chief of the Luftwaffe issued a number of general directives and orders to the the air forces in preparation for air operations on the fourth day of battle. First was "a warning order for 4 September" issued already at 1319 on 3 September as follows:

Emphasis will be on supporting the Army through attacks against Polish rear communications and troop concentrations, particularly in the line of advance of the Tenth Army and in the Bromberg-Graudenz-Thorn area. Counter-air action will be restricted to attacks against airfields on which reconnaissance reports large numbers of Polish aircraft. The 55th Bomber Wing will transfer to the command of the Fourth Air Fleet.

This warning order was reported verbatim to the Wehrmacht High Command at 1700 hours. The directives to the two air fleets were issued at 1755 in the following form:

Directive # 3 for First and Fourth Air Fleets:

Emphasis in operations on 4 September will be on support for the Army. Continuous attacks will be

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directed at Polish rear communications, retrograde movements, and troop concentrations. In counter-air operations only heavily occupied Polish airfields will be attacked. <sup>69</sup>

This directive was followed by

Special directives governing reconnaissance on 4 September. Areas of reconnaissance responsibility:

a. First Air Fleet, the Vilna-Warsaw, Lida-Warsaw, and Baranovice-Brest/Litovsk-Deblin rail routes east of the Vistula River;

b. Fourth Air Fleet, rail routes in the Lvov-Lublin-Deblin-Radom-Krakau-Tarnov area with special emphasis on the rail junctions at Sandomierz and Rodzvadov. Here it is of especial importance to watch for signs of any new Polish concentration of forces on the south flank of Army Group South. Report findings to Intelligence Division, Luftwaffe Operations Staff by 1200 4 September.

These directives and instructions reveal the interpretation placed upon the situation by the Commander in Chief of the Luftwaffe at the time. First, it is clear that absolute emphasis was to be on support for the Army in every form. Similarly to the previous day, two areas of main effort were to be developed in air operations: one in front of the German Tenth (main attack) Army, the other along

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the lower reaches of the Vistula River, in front of the German Third and Fourth Armies. As part of this development of areas of main effort the mission of operations against Polish rear communications was placed in the foreground, although railroad interdiction was not emphasized as it could logically have been done in view of the rail reconnaissance reports of the previous day. Air reconnaissance over the Polish railroad system is given priority, and was to be conducted in the north against the assumed Polish troop transportation movements east of the Vistula and converging on Warsaw, in the south against the entire rail network of southern Poland.

From the mission assigned to the Fourth Air Fleet it can be assumed that the Commander in Chief of the Luftwaffe had accepted the air fleets interpretation of the Polish railway situation in the south and the contingent assessment of the operational plans of the Polish command. At least the Commander in Chief of the Luftwaffe considered it advisable to keep these developments under continued observation. In contrast, no special attention was paid to

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69. Appendix 36.



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the Polish rail movements in the northern areas. For the first time the assignment of targets reveals that counter-air activities have been relegated completely to the background. The Commander in Chief of the Luftwaffe considered that Polish air power as <sup>an</sup> ~~as~~ instrument generally available to the Polish command no longer existed. The transfer of the 55th Bomber Wing was the first sign of the measures which were to follow within the next few days to steadily reinforce the Fourth Air Fleet, and thereby the first sign of the shift in command emphasis to the south.

The above interpretation of the situation by the Commander in Chief of the Luftwaffe and his intentions as deduced from the available orders is confirmed by a "Basis for Directive # 3" entered in the War Diary of the Commander in Chief of the Luftwaffe, and which can be considered as a post factum definition of the trains of thought on which the orders issued were based. <sup>70</sup> Probably the most important part of the "Basis" is the last paragraph, in which first mention is made of the possibility of a flank threat to the Tenth Army. It is obvious, however, that concern was felt only about the south flank, whereas a serious threat to the

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70. Copy in Appendix 36.

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north flank of the Tenth Army actually developed later.

This eminently important question was clarified shortly before midnight of the third day of battle in a briefing given to the Luftwaffe Operations Staff by the Wehrmacht High Command. Here it was established that a large-scale Polish transportation movement from Wreschen and Kalish to the Lecznica-Pabianice-Lodz area had commenced on 3 September, where 120 railway trains had been detected on the forenoon of this day alone. The Wehrmacht High Command expressed the opinion that these movements might be connected with the Polish concentration reported by Army Group South around Lodz, which would advance to attack the left flank of the German Tenth Army. At the same time the Wehrmacht High Command drew attention to troop movements within the southern

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Polish command. It appears thus that at this juncture the Wehrmacht High Command had formed a more comprehensive and more accurate interpretation of the overall rail traffic situation in Poland than that formed by the Commander in Chief of the Luftwaffe. However, this more accurate interpretation was based on reconnaissance reports from the Army, since the daily report of the Luftwaffe General with the Commander in Chief of the Army on the reconnaissance activities of the Army air units confirmed the reports of lively

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eastward rail traffic on the Wreschen-Kutno-Kalish-Lodz route on 3 September. Similarly heavy traffic had also been reported by the same units on the Lodz-Kutno industrial rail and on the Tarnov-Rozeszov route. This daily report only came to the knowledge of the Luftwaffe Operations Staff at 1340 on 4 September whereas it was available to the Wehrmacht High Command much sooner. This might be the reason for the faulty orientation of the Commander in Chief of the Luftwaffe at this juncture.

The overall clarification of the situation which began to take shape around midnight naturally could not be reflected in the directives and orders of the Commander in Chief of the Luftwaffe. However, Situation Report # 15 by the Commander in Chief of the Luftwaffe, issued at midnight of 3-4 September, unmistakably stated the air situation as follows:

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71. See p. 69, above.



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Again on 3 September there were no Polish bomber forces in evidence. Fighters were employed exclusively in defensive missions which they executed with considerably less dash than on the previous day because of the obvious superiority of our twin-engine fighters.

And finally, the Commander in Chief of the Luftwaffe was able to summarize:

.....that after establishing air superiority in Poland during the previous days the Luftwaffe now was free for missions in direct and indirect support of the Army, in the execution of which it played a decisively important role contributing to the Army successes on 3 September.

It was during this phase in the campaign in Poland that the repercussions between the operations in the east and the military-political developments in the west first made themselves felt. For strategic and general psychological reasons it is therefore thought advisable to review the overall situation as it then existed.

Before noon on 3 September the Wehrmacht High Command had informed the Commander in Chief of the Luftwaffe that Britain had declared war on Germany and that France, if she received a negative German reply to the French note of 1

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September would also consider herself at war with Germany from 1700 hours on. Because of this new development in the overall situation, which undoubtedly came as a political and military surprise for the Supreme German command, the Commander in Chief of the Luftwaffe at 2100 hours issued Directive # 2 for the Second and Third Air Fleets, in the west, which contained instructions for the conduct of air warfare against Britain and France. The now clearly established fact of a war on two fronts changed nothing in the conduct of operation in Poland, where the objective remained that of accelerated progress and a speedy successful end of the Polish campaign.

As had been done on the previous days, the First and Fourth Air Fleets again issued their directives and orders to their subordinate units on the basis of the instructions received from the Luftwaffe High Command.

The first Air Fleet, taking the warning order for 4 September from the Commander in Chief of the Luftwaffe as a basis, at 1544 issued the following order to the 1st Air Division, Luftwaffe Command Eastern Prussia, the 123d Reconnaissance Group, and the 27th Bomber Wing:

Main emphasis will be on operations supporting the Army through attacks against Polish rear communications, columns, and concentrations, particularly in the Bromberg



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Graudenz-Thorn area. Counter-air activities will be restricted to attacks against airfields reported as heavily occupied by reconnaissance.

In view of the quick success achieved by the Third and Fourth Armies operating against the Polish Corridor, the Fourth Air Fleet at the same time changed the boundary between Luftwaffe Command Eastern Prussia and the 1st Division (Air) as follows:

Western border of Free State of Danzig-western bank of the Vistula as far as Schwetz; from there southeast through Golup, Rybin, Soerpo, and Plock to Kutno (settlements to 1st Air Division). East of this line will be the zone of operations of Luftwaffe Command Eastern Prussia.<sup>73</sup>

This change in the areas of responsibility was due solely to favorable developments on the ground. The change made it possible for the 1st Air Division to provide direct air support for the Fourth Army advancing from the Corridor towards the Vistula in the Bromberg-Culm-Thorn area; in addition, it enabled the air division to support the further advance of the army along both banks of the Vistula in the direction of Warsaw. The new zone assigned to Luftwaffe

73. See Map 1, Appendix 38.



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Command Eastern Prussia also was unmistakably oriented from the Mlava area towards Warsaw, while only a narrow sector remained in the Graudenz-Strassburg area because of the necessity there for continued operations in direct support of the Third Army elements advancing through the area. Finally, the First Air Fleet ordered the transfer of the 1st Group of the 1st Twin-Engine Fighter Wing to Eastern Prussia under Luftwaffe Command Eastern Prussia<sup>74</sup>, thereby initiating a shift of forces in the northern area from the Pomerania region to Eastern Prussia which was to continue for a few days.

At 1700 the Commanding General, Fourth Air Fleet issued a basic directive for the continued conduct of operations, in which instructions were given for a regrouping of the air-fleets units.<sup>75</sup> This directive is significant for two reasons: (1) Reorganization of the command--the Special Purposes Air Command and its units were withdrawn from control by the 2d Air Division and placed under direct control by the air fleet and (2) Forward displacement of the tactical support units of the Special Purposes Air Command, some of them already to airfields in Poland.

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74. Returning from its next mission the group was to land at Muehlen I tactical airfield.

75. For text of order see Appendix 39.

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The command reorganization had become necessary for practical reasons and reasons of personality. From the outset the tactical support units of the Special Purposes Air Command had separated from their initial ground service area and followed closely the rapid advance by the German ground forces. As the advance progressed the influence of the 2d Air Division on these units became steadily less, in addition to which the division itself had entirely different missions. For technical reasons, the transmittal of messages and orders also became more and more difficult by the hour. Furthermore, coordination between the tactical air support units and the appropriate army commands had become so closely integrated in the meanwhile that control by rearward headquarters had become increasingly superfluous and, in fact, could only be harmful. For these reasons the Commanding General, Special Purposes Air Command, on 3 September had requested the commanding general of the Fourth Air Fleet, General Loehr to place him under direct command by the air fleet, and this request had been granted. The new chain of command became effective at midnight of the 3-4 September. The practical results of this change will be discussed later. <sup>76</sup> One result of the change was that now each air fleet had two intermediate commands under its direct control, which hitherto had

76. pp. 147-8.



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been true only of the First Air Fleet. It is hard to understand why this arrangement had not been made in the case of both air fleets from the outset. The last paragraph of the order referring to the missions of Air Administrative Area Command VIII also is closely connected with this changed chain of command.<sup>77</sup>

By midnight of 3-4 September the situation on the ground changed considerably.<sup>78</sup> The new boundary line between the two army groups mentioned in the annex extended the responsibilities of Army Group South considerably farther north in the Posen area, a change which seems to have been made exclusively for reasons of the conduct of army operations. The boundary line between the two air fleets, in contrast, was not changed. The weather continued to improve on 4 September and the situation on the whole was more quiet. It was still cloudy in the Carpathian and foothill areas, but the weather was clear in the rest of Poland, apart from a few patches of morning fog. Presumably the tactical airfields of the First Air Fleet were fog-bound in the morning, since the units stationed in Pomerania only commenced operating in the late forenoon; in the command zone of the Fourth Air Fleet air operations commenced early in the morning, so that weather conditions



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here apparently were favorable both in the take-off and target areas.

For a proper understanding of the execution of offensive missions by the two air fleets on 4 September, both in respect to their development and their objectives, it is not sufficient to view them in the light of the directives and orders issued on the previous day. Both the combat missions assigned and the reconnaissance results of 3 September, and in particular the orientation received from the Wehrmacht High Command at midnight, revealed that an entirely new phase was approaching in the conduct of operations on the ground. On the whole a situation appeared to be developing in which the Polish Army High Command was preparing to regroup its forces on a very large scale, possibly with the intention of planning a new major operation designed to gain the initiative. In view of this overall situation the decisive

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78. Appendix 40.

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was factor/what results reconnaissance would produce as data for the coming operations. Actually, the Luftwaffe command received a veritable flood of reconnaissance reports on the fourth day of combat from all areas of the front as well as from the far Polish interior.

The operational reconnaissance units of the Luftwaffe High Command and of the two air fleets as well as the tactical reconnaissance units operating under the Luftwaffe General with the Commander in Chief of the Army shared equally in producing the highly detailed coverage made possible by their intensive activities and the favorable weather. The integrated efforts of these three reconnaissance elements became increasingly important in the growingly critical situation. It is therefore all the more surprising to find that--and this applies specifically to 4 September--that a satisfactory stage of cooperation had not been achieved as yet between strategic or operational and tactical reconnaissance, that is, between the Commander in Chief of the Luftwaffe and the Luftwaffe General with the Commander in Chief of the Army. It remains inexplicable that the daily report of the Luftwaffe General with the

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Commander in Chief of the Army concerning the reconnaissance activities of Army air units on the previous day could only reach the Luftwaffe Operations Staff at 1340, on 4 September.<sup>79</sup> More time necessarily passed before these reports could be processed and the results transmitted to the two air fleets. It can be assumed, however, that the air fleets were informed directly and sooner because of their lateral contacts with the army groups and armies.

The results produced by air reconnaissance on 4 September<sup>80</sup> are to a large extent still available. From them the following general picture of the situation can be reconstructed: It was relatively easy to recognize that the Polish command was regrouping its entire forces, primarily by rail movements, into two separate areas of main effort. The first area was in the south, where rail transport operations were in process between Krakau-Tarnov-Sandomierz-Kamienna<sup>and Kielce</sup>/moving generally from north to east. These movements could indicate either a regrouping of forces in the southern area of the front or the first beginnings of a large-scale new strategic concentration pointing northwest from these areas. However, they could also be considered as preparations for the retirement of the entire southern part of the Polish front to behind the Vistula River. In the center, on the other hand, in the



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Lodz-Skierniewice-Kutno-Gnesen-Kalish area, rail and road movements revealed a new build up with main effort around Lodz. Completion of this concentration could produce a serious threat to the north flank of the German Tenth Army and to the Eighth Army, adjacent on the left. Finally, a third railway movement was clearly recognizable east of the northern reaches of the Vistula River, but there was no evidence here of the development of a third area of main effort.

The picture thus pieced together was well rounded out by reports from air reconnaissance against troop movements on secondary roads and bridges. Thus, large columns were observed moving northeastward along the roads, parallel with the reported railway movements in the south. In the northern areas retrograde movements were also observed in a general southerly direction, for example, along a line from Thorn through Ichenalza and Wągrowice. These movements indicated Polish evacuation of the Corridor and of the region along the Lower Vistula River. However, it was also

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79. See p. 77, above.  
80. Appendix 27

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possible to consider these movements as being connected with the assumed new Polish concentration around Lodz.

Finally, south of the border with Eastern Prussia large-scale Polish retrograde movements in a southerly direction through Mlava had also been observed, and operational reconnaissance had turned in completely new reports that new bridges were being constructed and bridge material being deposited at various points along the Vistula upstream from Warsaw. The overall impression gained from these widely varying reports was definitely that the fronts had become fluid in all sectors.

Examined in the light of this initial situation, the air operations on 4 September can be understood even better than otherwise. <sup>81</sup> Compared with the previous days, the units

of the First Air Fleet flew an exceptionally large number of

<sup>81</sup> diversified missions, which are best presented in the form of concise statistical statements, as follows:

Total number of squadrons committed	<u>70</u>
Under direct control by air fleet HQ (27th Bomber Wing)	7
Under 1st Air Division	24
Under Luftwaffe Command Eastern Prussia	39

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81. Appendix 41



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Breakdown by target categories:

Number of Missions	Type of target	Squadrons committed	Total
<u>Total</u> 30		<u>Total</u>	<u>70</u>
17	Rail interdiction		39
9	Troops (tactical)		20
4	Counter-air		11

Concentrations against rail interdiction targets:

Railway system in Hehensalza-Thorn-Wloclawek area  
 " " between Gnesen and Lodz  
 " " Kutno and Warsaw and in and around Warsaw  
 " " east of Warsaw, with emphasis at Malkinia-Gorna.

Concentrations against troop targets:

In area around Thorn (ahead of German Fourth Army)  
 In area around Mlava (ahead of German Third Army).

Concentrations against counter-air targets:

Dalikov, Brest-Terespol airfields; Warsaw-Okecie aircraft factories; Warsaw Radio station.

An evaluation and examination of these missions in detail reveals as the most striking feature that the main air effort of the day was against rail interdiction targets. This was fully consonant with the orders received and the requirements of the overall situation. A remarkable point here is, however, that no clearly defined power concentration can be discerned corresponding to the Polish main effort in rail transportation as it became evident during the day. This main effort became clearly defined in the Kutno-Lodz-Kalish-Gnesen area and obviously indicated a complete re-orientation in the overall Polish disposition of forces. Nonetheless, the highly important and worthwhile targets



187olved

involved only came under attack in the following cases:

an attack by the 27th Bomber Group against Kutno rail depo

attacks by 1 group of the 26th Bomber Wing against the Gnesen and Mogilno rail depots

attacks by 1 squadron of the 53d Bomber Wing against the Koluszki rail junction

attacks by 1 flight of the 26th Bomber Wing against the Lodz rail depot,

making a total of five-and-one-third squadrons. It must be admitted, however, that the numerous and heavy attacks flown by ten squadrons against the railroad system in the Hohensalza-Wloclawek-Thorn area, and specifically against rail interdiction targets ahead of the German Fourth Army, in direct support of local army operations at the same time affected the Polish concentration area around Lodz. The results achieved in these missions can be stated groupwise. In the western area of main effort, which comprised the two areas mentioned, direct hits cut the Thorn-Wloclawek rail routes at a number of points. The Wreschen-Kutno rail route was also cut in several places by direct hits, the Alexandrov rail depot was well covered with bombs, the Kutno rail depot was set on fire, and direct hits brought railway trains to a standstill on all rail routes. These results were achieved by the 27th Bomber Wing; the 1st Group, 1st Bomber Wing; the 1st Group, 26th Bomber Wing; and the 2d Group, 2d Dive-Bomber Wing. In the general area of Warsaw attacks by the 1st Group, 27th

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Bomber Wing, against the freight rail depot of Warsaw-West and by the 3d Group, 27th Bomber Wing against the marshalling yards of Warsaw-East were highly successful. The 1st Group, 1st Dive-Bomber Wing and the 2d Group, 3d Bomber Wing cut the Warsaw-Bialystok rail route, while the 2d Group, 1st Air Wing, bombed the rail intersection at Malkinia-Gorna and the 3d Group, 3d Bomber Wing, bombed the Luckov rail depot at Siedlce. Missions against tactical troop targets were flown as developments in the ground situation required in the areas of Briesen, Flonsk, Sierc, and south of Mlava; all of these attacks were in the general areas in front of the German Third and Fourth Armies but farther in the Polish rear than on the previous day. On that day, air operations here had been primarily in



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the nature of direct support artillery action for the attacking infantry, whereas on the 4 September emphasis was more on action to scatter withdrawing Polish columns and disperse Polish troop concentrations and destroy Polish rear communications. The objectives thus were consonant with the fact that the fronts actually had become fluid. Nevertheless, direct air action against hostile troop targets was less prominent than on the previous day.

So far as the two airfields reported as occupied are concerned, the attacks against counter-air targets were in every respect consonant with the orders received. In these attacks the 1st Group, 53d Bomber Wing, destroyed 3 twin-engine aircraft on the Dalikov airfield,<sup>82</sup> while the 2d Group, 1st Air Wing, set hangars and a number of aircraft<sup>in flames</sup> on the Brest-Terespol airfield. In the attacks by the 4th Group, 1st Dive-Bomber Wing, against Aircraft Factories ## 734 and 743 at Warsaw-Okecie, and by the 1st Group, 1st Dive-Bomber Wing, against the Warsaw radio station, in contrast, two dive-bomber groups were committed against targets against which action was not urgently required in the light of the overall situation.

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82. Not to be found on maps.



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In the command zone of the First Fleet the situation in the air remained practically unchanged on 4 September. Very few Polish fighters were encountered, and their aggressiveness and combat morale had declined even further. Polish bombers were found only on the ground. German air superiority remained uncontested over Poland. In detail, the following reports were received by evening on 3 September: The 3d Group, 2d Dive-Bomber Wing, while attacking railway trains at midday on the Thorn-Wloclawek route was engaged in combat by 10 Polish fighters, of which 3 were downed, and 2 forced to land; no German planes were lost. The 1st Group, 53d Bomber Wing, detected a total of 11 twin-engine Polish aircraft on the Dalikow airfield, of which it destroyed three. The 1st Group, 1st Twin-Engine Fighter Wing, reported that while escorting the unit which bombed rail depots in Warsaw it shot down 5 Polish aircraft, presumably fighters. Polish anti-aircraft artillery fire increased considerably, particularly around Lodz and Thorn.

The information on missions flown by units of the Fourth Air Fleet on 4 September is not nearly as complete and detailed as in the case of the First Air Fleet. Nevertheless, a fairly accurate picture can be traced in broad outline of the air fleet's plans, the missions executed, and the results

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achieved. Compared with the 1 September, the order of battle on 4 September shows that the Fourth Air Fleet had received considerable reinforcements.<sup>83</sup> Without exception all attack units were committed in continuous attacks against Polish troop movements by rail and road. This applies particularly to the bomber units of the 2d Air Division. However, the action of these units was supported by dive-bomber forces of the Special Purposes Air Command in strikes against specifically rail interdiction targets. On the whole, it is seen thus that in the command zone of the Fourth Air Fleet all efforts were concentrated against hostile transportation movements, even to the exclusion of direct support missions for the ground forces employed in areas of main effort.

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83. See separate table and 2 charts in Appendix 42.

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The chief outcome of the attacks flown by units of the 2d Air Division, of which the 4th, 76th, 77th, and 55th Bomber Wings were dispatched repeatedly, was that the Polish troop en- and detraining operations at numerous points were broken up. Furthermore, the attacks on the whole produced confusion in the Polish regrouping movements, traffic jams and congestion at important traffic centers and routes, and disruption of the entire Polish transportation plan. <sup>84</sup> An evaluation of the attacks flown against Polish rail targets reveals concentrated effects on various rail routes and rail systems. The effects were most marked on the Krakau-Tarnov-Rzeszov route, the rail system around Lublin, the Krakau-Jedrzejow-Kielce-Kamienna-Radom-Warsaw route, and the rail system in the Lodz area. The concentration of target groups in the area east of Lodz reveals that in this actual main area of the new Polish concentration of forces the attacks by the two air fleets supported each other effectively and in parts even overlapped. This concentration of air power was supplemented further by the attacks which dive-bomber units of the Special Purposes Air Command flew against railroad installations of the Koluczki rail junction and the Pabianice rail depot, both in the Lodz area. No Polish airfields were

84. These missions are presented in tabulated form in Appendix 43.



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attacked in the command zone of the Fourth Air Fleet on this day of combat, but the 1st Group, 2d Twin-Engine Fighter Wing, reported the destruction of 15 Polish fighters. In addition, fighters of the Special Purposes Air Command reported 4 Polish planes shot down and 9 destroyed on the ground.

In summarizing it can be said that in the southern areas of the theater also fronts had become fluid on the fourth day of the campaign, particularly in the operational zone of the Fourth Air Fleet and Army Group South. The Polish armies were in full retreat on all rail and road routes, but it was impossible to discern whether this was only a general retirement of the front or a movement to regroup all Polish forces. Apart from elements of the Special Purposes Air Command employed in direct support missions, the Fourth Air Fleet committed its entire force in preplanned and concentrated attacks against rail and road routes in the Polish rear. In contrast with the First Air Fleet, there is no evidence of any dissipation of forces through their commitment against non-priority targets. It is only natural that the effects of all these planned attacks only became fully evident a few days later, but even at this early stage it seemed that advantageous cooperation between the

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two air fleets in the boundary areas was secured.

Before closing this account of the fourth day of combat, mention must be made of a new important factor which, although primarily of a political nature nevertheless also produced military effects: At 0910 the Luftwaffe General with the Commander in Chief of the Army reported that the radio intercept service at 0200 had intercepted radio traffic between British aircraft and Polish airfield Lida.

According to a report by the 10th Tactical Air Support Command (Koluft 10) <sup>\*</sup> at 0430 the British aircraft in question were to land at Lida. Shortly after, this military report was supplemented and apparently confirmed by reports from political sources: Information arrived from the German Embassy at Bucharest that the British were preparing to purchase exceptionally large quantities of Rumanian mineral oils for the dual purpose of sealing off Germany's only source of supply and of securing supplies for a British air fleet in Poland. In the course of the day, however,

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\* Luftwaffe staffs attached to armies and army groups to control the air and antiaircraft artillery units allocated to their army or army group.



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it became clear that the reports concerning a probable landing of British aircraft in Poland were unfounded. It would have been impossible for them to land at Lida anyhow, because German air attacks had destroyed the runways and most of the installations there. The reports nevertheless produced one result: the Luftwaffe High Command found itself compelled to give consideration to the problem of cutting the rail routes between Poland and Rumania as a precautionary measure.

In its daily reports, the Luftwaffe Operation Staff made special mention of the effective results of German air attacks against the entire Polish railroad system and against Polish troop movements and detraining operations. The Commander in Chief of the Luftwaffe in his daily situation report for 4 September, Situation Report-East # 16, again was able to state that German air superiority had again remained unchallenged in the entire Polish theater throughout the day and that, compared with the intensity of the German air operations and the results achieved, German losses were very small. The report enumerated the numerous successful attacks against the entire Polish railroad system, but at the same time emphasized that, although rail traffic in Central Poland was



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completely paralyzed, complete interdiction of traffic of any duration had not been achieved on any one of the main routes. According to this report Polish losses totalled approximately 35 aircraft.

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The Wehrmacht High Command Bulletin for 4 September recapitulated in detail the successes achieved by the Luftwaffe in attacks against railroad targets. In addition to the individual air battles over Poland previously mentioned, however, it also refers to air attacks against Gdynia and Hel, in which Polish Destroyer Wicher was sunk and Polish Mineslayer Gryf was badly damaged.

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85. The complete text of the report will be found in the Karlsruhe Document Collection.

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## CHAPTER 6

5 September

## Air Reconnaissance and Army Support Operations

As on the previous days, preparations for air operations on the fifth day of combat was in the form of general directives from the Commander in Chief of the Luftwaffe. Reconnaissance reports of the previous evening left two points unclear: (1) It was still impossible to interpret clearly the purpose of the Polish transportation movements in the south, and (2) The meaning of the apparent Polish concentration movements in the general area of Lodz--to which the Wehrmacht High Command had previously directed attention--was still unclear. In spite of these two uncertain factors, the Commander in Chief of the Luftwaffe already at 1350 on 4 September issued a

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warning order, the full text of which will be quoted later.

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The order was preceded by a statement already no longer consonant with existing circumstances, namely, that

.....On the afternoon of 4 September the prevailing view at the Luftwaffe Operations Staff was that the Polish command probably would not accept battle on the near side of the Vistula River.

The first orders for operations on 5 September were based

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on the above incorrect interpretation of the situation, commencing with the warning order referred to above, which read as follows:

Combat and reconnaissance operations in accordance with Directive # 3 for 4 September. Main emphasis in Army support operations will be in the zones of the Tenth and Fourth Armies. Attacks against industrial targets are prohibited. Up to one-third of all air forces will be placed on rest status for 5 September. Efforts will be made to insure 100 percent operability for 6 September. Preparations will

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86. Ob. d. L. Fuehr. Stab Ia, # 4390/39 geh.

87. Study by the 8th (Military Science) Branch of the Luftwaffe General Staff, p. 104; Karlsruhe Document Collection.



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be made to transfer units to airfields in occupied Poland. Fourth Air Fleet will hold forces ready for action to destroy railroads in area southeast of Tarnopol-Stanislau. Details to follow.

This warning order was followed at 1650 on 4 September by Directive # 4 for both air fleets:

1. The main effort in air operations on 5 September will be in support of the Army. For this purpose efforts will be concentrated primarily against Polish rear communications, concentrations, and other movements in the line of advance of the German Tenth Army. Counter-air operations will be restricted to attacks against airfields on which sizable Polish air forces are reported. Attacks against industrial targets are prohibited. Fourth Air Fleet will direct strong attacks to intercept the railroads from Rumania in the area southeast of Tarnopol-Stanislau. The purpose of these interdiction operations is to prevent transportation from Rumania to Poland. Infringements of the Rumanian border will be avoided.

2. Rail reconnaissance activities.....will continue. In addition, the Vistula River will be kept under observation, particularly in the Sandomierz-

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Warsaw section to detect bridge construction operations or preparations for such purposes.

3. On 5 September both air fleets will withhold up to one-third of their aircraft and crews in their various units in order to insure restoration of full operability from 6 September on. Preparations will be made to transfer units to airfields in occupied Polish territories.

Consonant with this directive, main emphasis in air operations on 5 September, similarly to the previous day, was on support for the Army, primarily in the areas ahead of the German Tenth Army. One new mission was that of railroad interdiction in the southern area, namely, in the

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88. Ob. d. L., Fuehr. Stab Ia, # 4329/39 geh.

extreme southeast of the Polish Theater and thus completely out of touch with the missions of direct and indirect support for the Army; another was that of keeping the Vistula River under observation to detect any possible Polish preparations for a river crossing operation and was thus a precautionary measure of the Luftwaffe High Command.

The last mission assignments above reveal that the Commander in Chief of the Luftwaffe at this stage again was beginning to think and plan on the strategic plane. However, he made the mistake of not giving appropriate attention, so far as air tactics were concerned, to the tactical developments ahead of the actual fighting front, as evident from available air reconnaissance reports. The directives show clearly that the threat developing in the Lodz area for continued Army operations was not properly assessed. On the other hand it seems appropriate that air attacks were prohibited against industrial targets at this juncture, and that counter-air operations were restricted to attacks against heavily occupied Polish air fields. Another notable point is the uniform order to all units that, after four days of almost uninterrupted combat activities, certain measures of rehabilitation were to be taken. Although losses in personnel



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and materiel had been relatively small, capacities had to a certain extent been overstrained, so that it appeared advisable to spare the forces as far as possible in order to have them in good condition for later missions. The overall situation was such that the risk involved in a temporary reduction of all strengths by one-third could be accepted. The decision might have been due in part also to the uncertainty concerning future developments in the west.

From the Evening Report (East) by the Wehrmacht High Command to the Commander in Chief of the Luftwaffe the situation of the Polish forces on the night of 4-5 September was interpreted as follows: The movements from the Krakau area to Kielce to regroup the Polish forces had been brought to a halt by German attacks against troop and rail interdiction targets. The troop transport trains were halted at closely spaced intervals along the routes from Krakau to Kielce, but it was still uncertain which forces the Polish command intended regrouping, and the Wehrmacht High Command doubted that the Polish command could regroup in time. The Wehrmacht High Command further assumed that at least five infantry divisions and one cavalry brigade, the designation numbers of which were known, were involved

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in the regrouping movement. Intelligence information also revealed that numerous Polish troop columns had been withdrawing southeast- and southwards from the general line of Bromberg-Mlava since midday on 4 September. Allegedly, elements of the Polish 16th Infantry Division had escaped southward from Graudenz.

Concerning the German situation on the ground it can be said that the German attack on 4 September had gained considerable ground. Strong Polish retrograde movements were noticeable all along the line. <sup>89</sup> Weather continued fair over Poland and Eastern Germany, with only slight cloud formations in the fringe areas of the Carpathians.

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89. The disposition of German Army forces in the night of 4-5 September is shown in Appendix 44.



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In line with the directives received from the Commander in Chief of the Luftwaffe, the two air fleets issued their orders to their units, as had been done on the previous day.

The First Air Fleet at 2010 on 4 September passed on the contents of the directives to Luftwaffe Command Eastern Prussia and to the independently operating 27th Bomber

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Wing in the form of orders. From Paragraph 7 of these orders it is safe to assume that the First Air Fleet on its own initiative had, on 4 September, already placed one-third of its effective strength in rest status, so that the initiation of this general order was due probably not so much to an original idea of the Commander in Chief of the Luftwaffe as to the ideas of the Commanding General, First Air Fleet.

The Fourth Air Fleet issued a special operational order to its units, which corresponded in general to the directives received from the Commander in Chief of the

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Luftwaffe. One significant point in this special operational order was that only two bomber groups were specified for action against the rail routes to Rumania, which can be taken as a certain measure of reluctance to execute the assigned mission. From the last paragraph (Air Defense)



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it can be seen that the bulk of the antiaircraft artillery forces allocated for defense were transferred from the southeastern area to the west, since they were no longer required in the German rear after elimination of the Polish air threat.

As on the previous day, air reconnaissance was of decisive importance for the execution of the assigned air missions on 5 September. Owing to the exceptionally

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90. Full text in Appendix 45.

91. See Appendix 46.

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favorable weather good results were obtained which provided the basis for the coming action of the operational Luftwaffe. In actual practice the principle long recognized in theory as the only sound one was now applied in a steadily increasing measure. This principle was that air units should be committed only against targets of all types previously established beyond doubt as worth the effort, and during the first few days of the campaign it had happened frequently that bomber forces were dispatched on what might be called roving missions to search out their own targets.

For various reasons it is difficult to evaluate the air reconnaissance results of any specific day with any degree of accuracy, and the evaluation offered here is subject to reservations. One of the main difficulties is that the actual text of only a few of the reports turned in is available. Other reasons are that it is not possible to determine whether the reports available are merely a selection, that it is rarely possible to establish when the Luftwaffe High Command received them, and when the observations reported were actually made. Furthermore, the reports available are frequently far from precise on decisively important points. Thus, it is not always

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possible to determine in which reported transportation was moving, and the direction of a movement was the one decisively important factor in evaluation current situations.

Nonetheless, an effort will be made to arrive at an interpretation of the situation on the fifth day of combat as that situation may have appeared to the Commander in Chief of the Luftwaffe at the time. For this purpose the air reconnaissance results in the command zone of the Fourth Air Fleet will first be examined. As on the previous day reconnaissance reports indicated primarily two main areas of Polish rail and road transport movements: In the southern part of the theater the Krakau-Rzeszov-Sandomierz-Radom-Konskie-Kielce-Krakau area; in the northern part the area generally around and north of Lodz, astride the boundary line between the two German air fleets. The picture in the southern area was generally as follows: Almost all reconnaissance reports indicated that the attacks by bomber forces of the 2d Air Division had produced important results; large rail sections were filled with halted trains, and on all routes the number of trains observed in movement was considerably smaller than on the previous day; on all routes long lines of trains were seen standing still--some without locomotives--and the overall



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results of the interdiction attacks were clearly evident; in addition, lively troop and vehicular movements were clearly obvious in the areas close and farther around the destroyed rail depots, sections of open way, and the trains halted en route; these movements indicated that the transport movements had been detoured from the blocked rail routes to road routes.

In the general area of Wolbrom<sup>93</sup> and Kielce reconnaissance reports seemed to indicate heavy concentrations of transportation resulting from the destruction of railroads and railroad facilities. However, the decisively important point deduced from an overall evaluation of reconnaissance reports from the entire southern part was as follows: The

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92. Summary of reconnaissance results in Appendix 27.

93. Wolbrom, not shown in the outline maps, is situated on the rail route approximately 12 miles west of Mischov.

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orientation of all movements, still unclear on the previous day, was established unmistakably as a continuation of the Polish north to east movement. All Polish rail and road movements, particularly those in the direction of Radom, now clearly indicated a planned Polish withdrawal from the southern segment to and beyond the Vistula River up- and downstream from Deblin, which was already taking place. This also explained the construction and preparations for construction of bridges across the Vistula reported by reconnaissance units on the previous day. Another important point was that strategic reconnaissance over the rail routes towards the Rumanian border produced completely negative results: no traffic at all was observed on the rail and road routes in the entire area involved.

In the northern part of the theater air reconnaissance over the main area around Lodz on either side of the boundary between the two air fleets produced very much the same picture as that in the southern part. The same state of rail traffic congestion was observed as had been reported on the previous day, with more trains standing still than moving--a result of past air attacks. In the north, however, the general direction of Polish troop movements was not as pronounced as in the south. However, uncertainty

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on this point was removed completely in the evening by a report from the First Air Fleet.<sup>94</sup> This evening report revealed clearly that the Polish forces had regrouped or were regrouping in the general area of Lodz. This seemed to indicate a serious threat to the north flank of the German Tenth (main attack) Army and to the Eighth Army, responsible for protection of the main attack. It can be assumed as self-understood that this air fleet report represents the summary finding deduced from reconnaissance reports received during the day. Normally, these reports also were transmitted currently to the Luftwaffe High Command, and it can therefore be assumed with certainty that the Commander in Chief of the Luftwaffe also had a clear picture during the day of the situation in the northern part of the theater. The wording of the air fleet's summary report reveals that the air fleet during the day had based its operational orders on the individual reports thus received.

The operations of the First Air Fleet on the fifth day of combat were spread over three physically separate areas; this applies equally to the air fleet's bomber and dive-bomber forces and the twin-engine fighter forces committed in ground-attack action. These areas were as



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follows: (1) an area including the Wreschen-Konin-Kolo-Lowicz-Sochazew rail route and the parallel roads as well as the rail and road routes leading southward to the Lodz area from these two main routes; (2) an area comprising the region northeast of Warsaw with the Ostrolenka-Ostrow rail and road routes, the area generally in the line of advance of the German Third Army; and (3) a less important area in the Wloklawek-Plock-Sierpc region and thus at the Vistula River bridges in front of the right flank of the German Third Army. The particularly successful operations of the air reconnaissance units on this day of combat enabled the air fleet command to recognize clearly the coming importance of the Lodz operational area. For this reason it committed the bomber and dive-bomber forces of the 1st Air Division and of Luftwaffe Command Eastern Prussia in action against all detected targets from dawn to late evening. The targets thus attacked consisted of troops and motor columns moving south, which were subjected primarily to squadron-size attacks. At the same time systematic attacks continued

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<sup>94</sup>• Received at Luftwaffe High Command at 2028 hours; see Appendix 47.

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against rail targets, particularly against rail depots and moving trains along the Konin-Kutno route towards Warsaw. Among other rail targets, First Air Fleet units attacked the rail depots at Alexandrov and Zgierz immediately north of Lodz and the Kutno, Lowicz, and Skierniewice rail depots, thus overlapping in some parts the areas under attack by the Fourth Air Fleet. Altogether 54 squadrons were committed, of which 16 operated in the general area of Lodz and farther north. The distribution of these air attacks is shown in the appropriate Chart of Daylight Attacks, which also shows how the operations of the two air fleets overlapped: the First Air Fleet did not adhere rigidly to its prescribed boundary line but suited its operations primarily to the existing tactical and operational requirements. Although the air fleet on this day of combat may not have succeeded in breaking up the new Polish concentration, it definitely did succeed in seriously interrupting them and through the action of its units exercised a decisive strategic influence on the coming ground operations in this area. Thereby it also decisively influenced the imminent German defense action to repel the flank threat to the German main army of attack.

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95. Appendix 48.



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In the second main area, the region northeast of Warsaw the attacks by units operating from Eastern Prussia were spread about evenly between rail and troop targets. Forty squadrons were committed, of which 3 participated in the attacks west of Warsaw. During these operations Luftwaffe Command Eastern Prussia for the first time committed the 1st and 2d Groups of the 27th Air Wing, which had arrived in the command area on the previous evening. Thirtyfour squadrons were thus available to provide direct and indirect air support for the German Third Army. The bulk of these forces were committed in the Ostrolenka-Ostrow-Malkinia-Gorna-Siedlce-Minsk-Mazowiezki-Novy-Dwor-Wyskow-Ostrolenka area, while the rest attacked the Vistula River crossing points in the Wloklawek-Sierpe-Plock area.

In considering the strengths employed in these combat operations it is noticeable that the 1st Air Division committed only 11 squadrons. This small participation is not easy to explain but may have been due in part to orders that one-third of the bomber units were to be placed on rest status. The heavy commitments by Luftwaffe Command Eastern Prussia on the fifth day of combat are all the more noticeable. Although reinforced by the 27th Bomber Wing, the commitment of 40 bomber squadrons must be con-



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considered remarkable. So far as the development of power concentrations is concerned, the difference between the commitments in the two main operational areas is striking: Only 16 squadrons were committed in the endangered area around Lodz against 34 in the area ahead of the German Third Army and these in marked concentration ahead of the army's left flank. Here, thus, are the first indications of the new direction the German drive was to take from Eastern Prussia, with the eastern German flank moving southward east of Warsaw. From the command viewpoint it seems hard to understand why the First Air Fleet withheld one bomber group--the 2d Group, 27th Bomber Wing--instead of assigning it to the 1st Air Division.

For a proper appreciation of the combat operations of the Fourth Air Fleet it is necessary to quote first a directive telephoned directly to the 2nd Air Division on

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<sup>96</sup>  
this day of combat. This directive was worded as follows:

Main effort for the day remains at Tenth Army, with special emphasis on interdiction of rail routes from Lodz to Warsaw and from Kielce to Deblin. These missions take precedence over operations against rail routes south of Lvov.

This was the first instance of interference by the Commander in Chief of the Luftwaffe in the control of lower level units which later was to complicate the conduct of operations. The directive contains nothing new but permits the assumption that, at least around midday on 5 September, the Commander in Chief of the Luftwaffe still counted on a uniform Polish withdrawal all along the line to behind the Vistula River.

The Fourth Air Fleet committed its forces in accordance with the original directive, # 4, and with the new directive to the 2d Air Division. Insofar as the air fleet's operations can be reconstructed they are summarized in a separate <sup>97</sup> table. An evaluation of these operations produces the following picture: Main emphasis obviously still was on interdiction of rail and road routes in the southern areas with

96. Unfortunately, no detail information is available concerning this directive by the Commander in Chief of the Luftwaffe.

97. Appendix 49.



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the object of preventing a Polish withdrawal to the Vistula River in the area around and on both sides of Kamienna. Practically speaking, only three groups operated against the Lodz combat area, concentrating on the railroads at Lowice, Skierniewice, Brzeziny, and Kutno. No attacks at all were flown against the railroads in and around Lodz. Available reports show hardly any indication of action in direct support of the Tenth Army, although such action was provided for in previous plans; only elements of the Special Purposes Air Command were committed periodically in such missions. However, even the units of this command were employed mainly in rail interdiction missions. One group-size attack was flown against the eastward rail route in the Lvov area, and one group-size attack was flown against the Dublin airfield, on which planes were reported. The air transportation of supplies for the Army continued successfully, including the movement of 74 000 liters (approximately 18 000 gallons) of fuel for the 1st Panzer Division and ammunition and rations for the 10th Infantry Regiment.

On the evening of the fifth day the Commander in Chief of the Luftwaffe apparently interpreted the overall situation as follows: Operations in the Polish Corridor were drawing to a close. There were no longer any important targets in



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the general area of Poznia. The areas of main effort were moving diagonally apart, the one toward the extreme northeast, the other southward into the zone of the Fourth Air Fleet. The Commander in Chief of the Luftwaffe therefore considered that he could use the air units released by the rapid development of ground operations in the zone of the First Air Fleet to reinforce the Fourth Air Fleet. This reinforcement was to enable the Fourth Air Fleet to counter a possible intended Polish counterattack against the left flank of the German Eighth Army. This train of thought is revealed by a remark in the War Journal of the Commander in Chief of the Luftwaffe entered at 1740 on 5 September. This is the first indication that the Commander in Chief of the Luftwaffe recognized the danger of a flank attack as a threat to the entire operation, and that he had drawn the logical and proper conclusions. These conclusions resulted in two decisions later formulated in directives to the troops.

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The first concerned the previously mentioned transfer of bomber forces to the Fourth Air Fleet. The second, however, had the effect of changing the operational areas to conform to three different directions: For range considerations the rail routes from west to Warsaw were included in the zone of the Fourth Air Fleet; responsibility for action against the Vistula River crossings southeast of Warsaw also was assigned to the Fourth Air Fleet; the entire area in front of the German Third Army, now also including the far Polish rear, was assigned to the First Air Fleet.<sup>98</sup>

The evening report submitted by the Luftwaffe Operations Staff to the Wehrmacht High Command at 2300 hours mentions the successful attacks against the various rail routes in the entire theater and against Polish troop columns, primarily ahead of the German Third Army but, as on the previous day, contains no mention of the First Air Fleet concerning the southward and southeastward withdrawal of the Polish forces from the Wreschen-Kutno line. Situation Report (East) # 17 by the Commander in Chief of the Luftwaffe at 2400 hours also contains no mention of these southward and southeastward movements of Polish troops. It mentions only large Polish retrograde movements to northeast and east from the areas around Kielce-Radom and Lodz-Tomazow.<sup>98</sup> In Directive 95 for 6 September. See Appendix 50.



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The clear and important conclusion drawn by the First Air Fleet concerning the real direction of the Polish withdrawal (namely, against the left flank of Army Group South) is not taken into consideration at all in the daily report. What makes this all the more remarkable is the fact that the Commander in Chief of the Luftwaffe as early as at 1740 had decided to assign the Fourth Air Fleet considerable reinforcements to enable it to take effective action against any counterattack which the Polish Command might intend against the left flank of the German Eighth Army. Contradictions obviously exist here.

The decisively important <sup>factor,</sup> however, is the measures taken on the interpretation of the situation, and these undoubtedly were appropriate. In spite of the relatively late realization by the Commander in Chief of the Luftwaffe that the possibility existed of a flank attack by Polish forces from the Lodz area, he still seemed intent on counting basically upon a general Polish retrograde movement all along the line. However, unmistakable indications for such a movement were evident only in the southern sector. The interpretation of the overall situation in this sense resulted on 5 September in a new decision by the Commander in Chief of the Luftwaffe; the commitment



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of the 7th Air Division in the southern sector to support the decisive envelopment maneuver there. This intention is expressed in entries at 1130 and 1140 on the fifth day of combat in the War Journal of the Commander in Chief of the Luftwaffe as follows:

Strategic reconnaissance yesterday and this morning leaves no room for doubt that the southern Polish forces have commenced a northeastward retrograde movement toward the Vistula River. To prevent a Polish withdrawal across the Vistula, preparations have been made to commit the airborne forces of the 7th Air Division at Deblin, east of the river. The airborne operation is to be so timed that they will be relieved by Army forces at latest within fortyeight hours.

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Actually, this decision by the Commander in Chief of the Luftwaffe involved not only technical preparations as part of the planning done by the Luftwaffe General Staff. Nor was it merely a general order for an airborne operation or for an operation east of the Vistula in general. What we have to do with here was rather a clear-cut order by the Commander in Chief of the Luftwaffe to the 7th Air Division requiring the commitment of the entire division at Pulawy on the Vistula River. This order read literally:

To seize the important road bridge at Pulawy; at the same time to isolate strong hostile forces.

This order was transmitted personally by Goering to the commanding general of the 7th Air Division, who was given a free hand in the execution of his mission. The commanding general intended taking the bridge in an attack by paratroopers from both sides in order to seize it intact. All air carried infantry troops were then to be landed west of the river on airfields identified through air photo reconnaissance, which were to be secured first by paratroopers landed by air jump. The commander described the entire

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99. The account given here and in the following passages follows a written statement by Generaloberst Student, at the time in command of the 7th Air Division, dated 31 May 1955. His statements are submitted in Appendix 51 in the form of a completed questionnaire. Pulawy is on the banks of the Vistula River, approximately 10 miles southeast of Tscheln-Irena.



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area as "ideal air jump and air landing piece of terrain," and expressed his opinion that he could not fail to achieve complete surprise. The operation was planned in all detail and was to be executed approximately between 8 and 11 September but was cancelled at the last moment, when the paratrooper units were already aboard their planes ready to take off.

The reasons for this cancellation are still unknown, and the following possible explanations are offered:

1. The plan was conceived on 5 September but probably could not have been executed until five days later. Meanwhile the advance toward the Vistula on the ground had made good progress so that the commitment of airborne forces appeared superfluous;
2. Hitler's desire to avert premature disclosure of the existence of a German airborne force may have produced a last moment veto;
3. Goering intended that his most modern arm should decide the entire campaign and was prevented from such action by Hitler at the last moment.

Although this operation was to be staged on 7 September it seems appropriate to deal with it here since the plan

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100. This possibility is an assumption of the present author.



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apparently was conceived on 5 September on the basis of the situation on that day.

On the fifth day of combat the situation again was favorable for the Luftwaffe. Two counter-air missions were flown, one in the north and one in the south, with units of the First Air Fleet attacking the Polish Brest-Terespol airfield and units of the Fourth Air Fleet attacking the Dublin airfield. At Brest-Terespol the 2d Group of the 26th Air Wing set hangars, billets and shelters, and tanking installations on fire, and at Dublin the 1st Group of the 76th Bomber Wing destroyed three Polish planes on the runway and shot down one reconnaissance plane. Both attacks seem to have been quite in line with the directives received and produced evidence that the Polish command still had bombers on airfields they considered secure against German attack. What remains unexplained is why these bombers had not been committed in the past operations, during which they could have relieved the strain on the Polish troops even though only slightly.

A somewhat larger number of Polish fighters were in evidence than on the previous day. However, owing to their scattered commitment and their inferior flight properties even in comparison with German bombers, they were unable

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to achieve results in any areas. One example is that of a German bomber squadron, the 3d Squadron of the 2d Bomber Wing, which encountered a Polish fighter squadron at Wyskow, ahead of the left flank of the German Third Army. Of the nine Polish PZL fighters two were shot down without German losses.

It was evident that the power of the Polish fighter arm was broken, and although they were encountered here and there right up to the end of the campaign, they could be considered from this juncture on to have been eliminated as a serious combat factor. They even kept at a safe distance from German bombers and reconnaissance planes and in no case attacked.

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101. Based on personal experience of the present author.



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From now on the German fighter units were relieved almost completely of the necessity to fly counter-fighter and escort missions. From 5 September on they could be committed in roving missions but were hardly able to find opponents. German air supremacy throughout the theater thus remained uncontested.

In contrast, Polish antiaircraft forces on the fifth day of combat again were a serious factor. It appears that they were concentrated chiefly along the Konin-Kolo-Kutno-Lowicz rail route, which seems quite logical in view of the newly observed Polish concentration movements. In the south the rail juncture at Kamienka appears to have been protected by particularly strong antiaircraft artillery forces. On the German side the general impression was that Polish antiaircraft delivered heavy and well-placed fire. On this fifth day of combat alone, three German bombers were brought down by antiaircraft fire. In the numerous low-level attacks flown by German air units against ground targets, the heavy and accurate fire delivered by the Polish ground forces proved extremely harassing.

According to a summary by the Commander in Chief of the  
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 Luftwaffe a total of 20 Polish aircraft were destroyed on 5 September.

102. Without details as to time and sources of information.



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## CHAPTER 7

6 September: REGROUPMENT OF AIR FORCES FOR  
COMMITMENT IN DIRECT SUPPORT OF THE ARMY

Before dealing with air operations on the sixth day of the campaign it seems appropriate to review the status of ground operations at this stage because of the close imminence of spectacular events.

Army Group South,<sup>103</sup> which had wheeled its Eighth and Tenth Armies north, assumed that the Polish forces were withdrawing from the Skarzysko-Kamienna-Kutno line and falling back on the Vistula-Sandomierz-Warsaw line. The intention was to make an all-out effort in pursuit, in which the Eighth Army was to advance south of the Bzura River with main effort in the direction of Skierniewice.

Army Group North was assigned responsibility for reconnaissance in the entire Meseritz-Poznia-Konin-Kutno-Skierniewice-Warka-Brest-Baranowice-Lida-Grodno-the borders of Lithuania area, with special emphasis on establishing the direction of movement of the Polish forces in the Kolo-Kutno-Skierniewice-Modlin-Plonsk-Lipno area; for this purpose the Fourth Army shifted emphasis in its reconnaissance activities to the Wloclawek-Kutno-Plock area. In addition, reconnaissance was to be carried out over the rail and roads routes

<sup>103</sup>. Study by the 8th (Military Science) Branch of the Luftwaffe General Staff, Nov. 39. Karlsruhe Doc. Collection.

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leading from Obornik through Gnesen, Thorn, and Hosslerhausen and farther southeastward. Utmost importance was attached to reconnaissance on the right flank.

In the manner followed since the beginning of the campaign the Commander in Chief of the Luftwaffe issued his general directives to the First and Fourth Air Fleets for 6 September, reading as follows:

Main emphasis will be on support for the Army.

First Air Fleet will operate in front of left flank of Third Army, for which purpose 1st Division will move to Eastern Prussia. Fourth Air Fleet will hold forces ready for action ahead of Tenth Army in Kielce-Lodz area to repel Polish forces attacking today at Sieradz. Boundary between First and Fourth Air Fleets, effective midnight 6 September: Present line to Kutno (First Air Fleet), from there to Sochaczew to Plonie to Prusko to Gora-Kalwaria to the Vistula River as far as Pulawy to Lublin to Cholm to Kowel (Fourth Air Fleet responsible for river and settlements). First Air Fleet will prepare for transfer of two dive-bomber groups released in Pomerania to Fourth Air Fleet on 6 September.

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The above preparatory directive was followed at 1740 on 5 September by Directive # 5 to both air fleets for 6 September as follows:

1. Emphasis in combat activities will remain on support for the Army. First Air Fleet will operate in front of First Army left flank, for which purpose elements of 1st Division will transfer to Eastern Prussia. Fourth Air Fleet will operate in front of Tenth Army in Kielce-Lodz area. Elements will be held ready for action against possible enemy on left flank of Eighth Army.

2. Boundary between First and Fourth Air Fleets effective midnight 5-6 September: Present line to Kutno (First Air Fleet) to Sochazew to Plonie to Pruszkow to Gora-Kalwaria to Vistula as far as Pulawy to Lublin to Cholm to Kowel (Fourth Air Fleet responsible for river and settlements).

3. First Air Fleet will conduct reconnaissance around Bialystok, Fourth Air Fleet in the Sandomierz-Tarno and the Przemyśl areas. The important point is to ascertain whether new Polish forces are building up.



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4. On 6 September the Fourth Air Fleet probably will be reinforced by one dive-bomber group and a wing headquarters with two He-111-H bomber groups. Preparations will be made to commit these forces primarily in the left flank area of the Eighth Army and in support of the Tenth Army. The First Air Fleet on 6 September will again release two transportation squadrons--the 5th and 6th Squadrons of the 186th Group, to the Second Air Fleet.

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The Commander in Chief of the Luftwaffe further addressed the following special instructions by telephone to the Fourth Air Fleet:

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"No bridges will be attacked; rail routes to Rumania will be interdicted; Lvov airfield will be attacked."

The essential points of these new directives can be analyzed as follows:

1. Main effort throughout was to continue in Army support operations;
2. Emphasis in the theater was shifted to the Fourth Air Fleet, which received considerable reinforcements from the First Air Fleet;
3. For the first time the Fourth Air Fleet received instructions to prepare for action against the

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threat to the main attack army. The Commander in Chief of the Luftwaffe had thus recognized this threat;

4. All forces of the First Air Fleet were concentrated in Eastern Prussia and the air fleet was restricted to operations in direct support of the Third Army, with main emphasis on the left flank;

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105. Ob. d. L. Fuehrungstab Ia, # 4396/39, geh., Karlsruhe Document Collection.

106. Received by Fourth Air Fleet at 2245 on 5 September according to Commander in Chief of the Luftwaffe War Journal; Karlsruhe Document Collection.

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5. The boundary between the two air fleets, which had remained unchanged since 31 August was changed for the first time in consonance with the assigned missions.

6. In view of the suspected new Polish assemblies in the northeast and southeast, strategic reconnaissance was concentrated in new zones in these areas.

The whole tenor of the directive from the Commander in Chief of the Luftwaffe for the first time expresses clearly and unmistakably that from now on the main mission for the entire operational Luftwaffe was to support the Army. In this sense two separate areas of main effort and groupments become obvious: (1) The First Air Fleet was to support the left flank of the German Third Army in its drive east of the Vistula, and thus had a clear-cut offensive mission; (2) The Fourth Air Fleet was to continue its offensive action in support of the German main army of attack. In addition it had a defensive mission, that of holding tactical reserves ready for action against the recognized threat to the Army Group South north flank which was developing. The entire complex of the mission assignments for both air fleets thus clearly reveals that emphasis in air operations had shifted almost exclusively to direct support for the Army.



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The new division of sectors gives rise to the following reflections: (1) It does not appear fully justifiable to assume that the expansion of the attack zone assigned to the Fourth Air Fleet west of the Vistula was due to the inadequate operating range of the forces under the First Air Fleet for the new mission assignments. The probable area of combat between Kutno and Warsaw obviously was just as accessible to air units operating from Eastern Prussia as to those based on airfields in Upper Silesia. In fact, it was to be assumed that the scene of action would move steadily closer to Eastern Prussia as the battle moved eastward;

(2) It was to be assumed that as Army operations progressed the importance of the rail and road system southwest of Warsaw would increase, so that the expansion of the zone of operations of the Fourth Air Fleet towards Warsaw was perfectly logical if the air fleet was to succeed in its dual mission of supporting the main attack army and protecting the northern flank;

(3) However, these apparently sound ideas obviously were not carried through to their logical conclusion, since all rail and road routes assigned as targets to the Fourth Air Fleet centered on Warsaw, so that it would have been logical to assign the air fleet responsibility for Warsaw

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and the entire Vistula River bend region around Warsaw as well. This was all the more the case in view of the fact that the entire Army operation was directed clearly at Warsaw. Under any circumstances it remains inexplicable why Warsaw, the major part of which is west of the Vistula, was not included in the Fourth Air Fleet zone in the current overall situation;

(4) Another flaw in planning is evident in respect to the Lodz region. Assuming that the intention was to give appropriate tactical attention to the general area of Lodz, the unequivocal reconnaissance results of the previous day clearly also required that the road and rail routes in the region between Konin and Kutno and leading into the Lodz area should have been included in the zone of the Fourth Air Fleet to insure a uniform conduct of reconnaissance and combat operations against the threat from the north. At any

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107. See Appendix 38, where Map 2 shows the old and the new boundary lines between the First and Fourth Air Fleets.



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rate it would have been necessary at this juncture to consolidate under one air fleet responsibility for operations in the entire Lodz area;

(5) East of the Vistula the new boundary line southeast of Warsaw also does not appear quite logical. If the Commander in Chief of the Luftwaffe believed that the Polish armies within the zone of the Fourth Air Fleet were in full retreat to and across the Vistula, it was definitely wrong to establish the boundary line between the two air fleets along the river itself. A river crossing movement on the large scale expected here must be kept under constant observation and attack even on the opposite shores and far inside hostile territory. All operational and tactical activities of the hostile and of the friendly forces on the near and far banks of the river are but part of one inseparable whole. There was no need to break continuity of action by assigning responsibility for the western bank to the Fourth Air Fleet and for the eastern bank to the First Air Fleet;

(6) The major new feature arising from the new alignment of the boundary and the new allocation of forces was the fact that from now on the First Air Fleet had only one army, the Third, to support, while the Fourth Air Fleet was required to provide air defense and air support for all



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the other armies, and thus for the large bulk of all theater ground forces in their main operations. This resulted logically in a progressive weakening of the First Air Fleet and a corresponding reinforcement of the Fourth Air Fleet. From this juncture on main emphasis in all future decisively important air operations was exclusively with the Fourth Air Fleet. This realization was further stressed on the very next day, 7 September, by the assignment of First Air Division Headquarters with its remaining forces to the Fourth Air Fleet. Another logical consequence was the displacement of First Air Fleet Headquarters to Eastern Prussia. The new headquarters locality appeared most suitable for the reorganization and command of the forces remaining to the air fleet;

(7) Concurrently with the last-mentioned realignment of power within the attack forces of the Luftwaffe in the east, the transfer of air defense forces to the western theater commenced. Strong antiaircraft artillery forces were transferred from the First Air Fleet to the Second Air Fleet--in the western theater, after British air attacks in the North Sea areas had created the necessity to reinforce the air defense forces stationed there, and, also as a part of this shift to the west, Directive # 5 ordered the release

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of two air transport squadrons, also for transfer to the Second Air Fleet. However, the latter order was due apparently to an error at Luftwaffe High Command, since the two air transport squadrons were at no time under the command of the First Air Fleet. They probably were under Air Command East, and thus allocated to the Navy, and had been employed hitherto in the Danzig-Gdynia area.

As had been the case on the preceding days, the First and Fourth Air Fleets issued their orders to subordinate headquarters primarily in consonance with the directives received from the Commander in Chief of the Luftwaffe. Following up warning orders transmitted at 2105 on 5 September, the Commanding General, First Air Fleet, issued the following Air Fleet Order for 6 September:<sup>108</sup>

1. As on 5 September main emphasis will be on support for the Army, primarily ahead of the left flank of the Third Army. For this purpose Luftwaffe Command Eastern Prussia will maintain close contact with Third Army Headquarters. The 1st Air Division must still be ready to commit elements to relieve the strain on Army Group South.

2. Counter-air action will be restricted to quick attacks against sizable hostile air forces reported



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on the ground by reconnaissance planes. These attacks will be carried out by units held ready for the purpose.

3. The boundary between the First and Fourth Air Fleets, effective 0000 hours, as follows: .....  
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Reconnaissance and combat operations against the Polish ground organization around Dablin thus will be of increased importance.

4. The boundary line for reconnaissance and combat operations between Luftwaffe Command Eastern Prussia and the 1st Air Division in Polish territory will be as follows.....  
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5. The 2d Group, 27th Bomber Wing (at Neuhardenberg) will be transferred and moved from the First Air Fleet to Luftwaffe Command Eastern Prussia. The movement will take place to Seerappen in accordance with peacetime regulations on 6 September at daybreak or as weather conditions permit.

6. The 1st Air Division will designate one dive-bomber group for transfer to the Fourth Air Fleet on call, until which time the group will remain available

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108. No source given.  
109. P. 116, above, Directive # 5.  
110. Appendix 38: Map.



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for operations in present sector. The following units are intended for action in the zone of the Fourth Air Fleet on call: 26th Bomber Wing Headquarters with its headquarters squadron and its 2d Group, plus the 1st Group of the 53d Wing. Until required the 26th Wing will remain with the 1st Air Division.

7. The 121st Reconnaissance Group has received instructions to maintain constant railroad reconnaissance over the Warsaw-Bialystok-Grodno route and over the area taken over from Fourth Air Fleet. It is of importance in this area to ascertain whether new Polish forces are grouping and whether fortifications exist on the eastern bank of the Vistula. Air photos will be obtained of Deblin;

8. On 6 September one-third of all units will be withheld from action for repair and maintenance;

9. Fighter escorts will be provided for army reconnaissance aircraft wherever Polish fighters appear.

The above order by the First Air Fleet necessarily is consonant with Directive No.5 from the Commander in Chief of the Luftwaffe. In Paragraph 2, however, it exceeds the requirements of that directive by again providing for units to be held available for counter-air action. It is safe to assume

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that reconnaissance information not presently known was the reason for this measure.

The instructions received by the air fleet to transfer certain units to other commands and to hold others ready for transfer on call produced the following results: (1) Through the transfer of its 2d Squadron to Eastern Prussia, the 27th Bomber Wing was again complete, under Luftwaffe Command Eastern Prussia, which simplified command channels; (2) Luftwaffe Command Eastern Prussia thus on 6 September had a strength of at least 9 bomber and 1 dive-bomber groups; (3) The 1st Air Division, in contrast, retained only two bomber groups-- the 1st Group each of the 1st and 152d Bomber Wings--, and two dive-bomber groups; (4) This meant that the First Air Fleet now still controlled three high level command staffs but had aggressive forces only equal approximately to those of the 2d Air Division under the Fourth Air Fleet; (5) In fighting strength the First Air Fleet thus was only equal to an air division.

Pursuant to the directives received from the Commander in Chief of the Luftwaffe, the Commanding General, Fourth Air Fleet issued the following Air Fleet Order for 6 September:

1. Air Situation.....;



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2. Air Fleet boundaries....(as in Directive # 5 from the Commander in Chief of the Luftwaffe);

3. On 6 September all air fleet forces will attack in direct and indirect support of ground operations;

4. The 2d Air Division, while retaining its mission of supporting the Fourteenth Army, will place main emphasis on supporting the Eighth Army in its mission of protecting the flank of the Tenth Army by attacking the Polish forces expected from the Konin-Kolo and Lodz areas. In addition, units will attack the Vistula River bridges from Bulawy downstream. As a concurrent mission, units will attack the air ammunition installation in the forest at Lodz with incendiary bombs;

5. Special Purposes Air Command will continue to attack ahead of the Tenth Army, with main emphasis in XVI Corps sector;

6. Assigned reconnaissance zones will be expanded in accordance with the expanded air fleet zone of operations. Main emphasis will be on detecting the approach of Polish forces from the Warsaw area and to

111. Complete documentation unfortunately not available.



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the Vistula River bridges.

These air fleet orders bring two decisively important facts into prominence: (1) The air fleet was to commit all forces in support of army operations instead of scattering its units as on the previous day; and (2) For the first time emphasis in air support was shifted clearly to the Eighth Army, the purpose being to repel the Polish threat from the north which endangered the entire German advance.

In their entirety the directives and operational orders for 6 September introduced a completely new phase in the conduct of operations in Poland. The prominent features were a clearly defined concentration of effort in the southern part of the theater and a transition to defense against a threat endangering the entire plan of operations. The measures thus taken produced the conditions which led to victory in the battle at Kutno. The orders issued on 6 September not only influenced events on that day but shaped the entire course of the rest of the campaign in Poland in 1939. This subject will be dealt with more exhaustively in Part 3 of the present study.

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## CHAPTER 8

## CRITIQUE OF FIRST PHASE OF THE CAMPAIGN

1 through 5 September

A critique of the first phase of the Polish campaign is a risky undertaking. The entire campaign was of short duration and in reality should be considered as one composite whole in which the newly created German Air Force, the Luftwaffe, was called upon to prove its capabilities in actual warfare. It is possible nevertheless to select from the first phase and from the experience gained a number of features which are of eminent importance for a later overall evaluation of the entire campaign. The object of this partial critique is to compile experiences and realizations which became evident in a retrospective view of the activities of the operational Luftwaffe in the first phase.

The following order of subject matter presents itself to the mind:

1. The transition from operational to tactical action;
2. The Luftwaffe High Command;
3. Day by day commitment of the operational Luftwaffe;
4. Night missions of the operational Luftwaffe;



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5. Operations of the Tactical Support forces of the Special Purposes Air Command;

6. Overall situation on 5-6 September.

1. The Transition from Operational to Tactical Action.

The past six chapters of this part, Part 2, of the present study have the following titles: The Surprise Attack against the Polish Forces on 1 September; 2 September--Operations in Support of the Army Commence; 3 September--Main Emphasis on Support for the Army; 4 September--Operations Aiming Primarily at Destruction of the Polish Railroad System; 5 September--Air Reconnaissance and Army Support Operations; and 6 September--Regroupment of Air Forces for Commitment in Direct Support of the Army. These titles in themselves reveal the surprising fact that within an incredibly short period the German use of air power changed from operational to tactical action, the independent conduct of operations to a conduct of operations in support of the Army and directly dependent on Army operations. This development is revealed in greater detail by the contents of those six chapters.

The planning and execution of strategic air operations in the Polish campaign was subject to the concepts of air strategy then in existence, which differed widely and fundamentally from presently accepted concepts, and was governed

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primarily by three factors: (1) The small size of the theater of operations, which could not even be compared with continental standards; (2) The current principle of blitz warfare, which gave priority to Army operations; and (3) the complete superiority of the Luftwaffe in every respect and from the very outset over its Polish opponent.

It is beyond doubt that, in planning and execution, the initial counter-air missions flown by the Luftwaffe reveal the characteristics of strategic air warfare as understood in those days. What was considered the primary and most urgent mission of air power in those days was executed thoroughly within an astonishingly short time. However, strategic planning in the proper sense, had remained restricted

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112. Handbuch der Luftstreitkrafte, Grundlegende Auffassungen der Luftstreitkrafte ueber strategische Luftoperationen, 1 May 54, Department of the Air Force; Karlsruhe Document Collection.

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to the accomplishment of this one specific mission. No further signs of strategic planning are evident. Such plans, which would have aimed at a long-range conduct of air warfare independent of the Army and the Navy would not have been possible in the circumstances ruling in Poland.

Quite logically the commitment of the operational Luftwaffe in missions designed to render direct and indirect support to the Army--and primarily in accordance with tactical principles--commenced already on the second day of the campaign. This type of air warfare continued unchanged not only throughout the already described first phase but right up to the end of the Polish campaign. Even the massed air attacks against Warsaw, which will be related later, cannot be considered an exception. There were simply no objectives in existence which could have been considered as falling within the category of strategic air warfare in the then existing sense. Even the large scale attacks against Polish communications were all carried out in closest cooperation with various army headquarters. On the other hand, action against armament centers and other "sources of hostile power" were superfluous because, in the era of blitz warfare on the ground and all it implied, the value of these sources for the enemy was automatically illusory, and because any destruc

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destruction of these sources might have hampered German exploitation of the conquered territories.

The surprisingly quick establishment of absolute German air supremacy and the decisive participation of the entire Luftwaffe in ground operations made it possible to achieve the supreme objective of the Polish campaign: the complete elimination of the Polish Army and State, within an extremely short time. Thus, the original concept of strategic air warfare, namely, "air warfare, against strategic targets, designed to serve the purposes of the overall conduct of war,"<sup>113</sup> became completely inapplicable already on the second day of the campaign. It was replaced by the purely tactical mission of air power, that of reinforcing the Army artillery, of extending its range into the far enemy rear, and even of acting as "vertical" artillery fire power. This completely shifted the emphasis in air operations from the strategic to the tactical sphere.

These developments were in no wise consonant with existing German concepts of air warfare and were brought about compulsorily by the small size of the theater of operations. In the restricted areas involved there was no possibility from the outset for the assignment of missions compatible with genuine strategic air warfare in the then existing sense. At



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the same time, however, the question presents itself to the mind here whether the Luftwaffe in its then current stage of technical development and with the forces actually available in the Eastern Theater would have been able at all to conduct strategic warfare in a large area of really continental dimensions. This still remains an open question. The unquestionably spectacular success of the Luftwaffe in Poland unmistakably was achieved in the restricted space of an isolated theater of operations against an in every respect inferior opponent.

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113. Quoted from the study: Die Strategischen Auffassungen der deutschen Luftwaffe ueber den Luftkrieg; Karlsruhe Document Collection.

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2. The Luftwaffe High Command. At the opening of the Polish campaign the Luftwaffe High Command had to cope with the problem of using only two-thirds of its total air power to eliminate Polish air power, provide direct and indirect support for the Army, and, in addition, wage warfare against the hostile "sources of power." It seemed uncertain initially whether this partial commitment of German air power would suffice for the accomplishment of all these missions. To achieve the most effective results it was essential to have a highly flexible command capable of adjusting to the changing situations and developing the appropriate concentrations of power. In its operational planning the Luftwaffe High Command had prepared a clear-cut program of main concentrations and in advance had established target priorities.

The first concentration of effort was on action to eliminate the hostile air forces and their ground organization as the essential condition for the accomplishment of all other missions. The time requirements for this first mission naturally could not be calculated in advance. During preparations for the campaign, however, this whole concept had been watered down. Numerous demands by the Army and the Navy had resulted in the diversion of attack air forces from the main target for commitment in other special missions. The First



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Air Fleet was most seriously affected by this diversion of forces. For the first all-out attack against the Polish air forces on the first day of warfare only approximately one-half of the existing strength in attack air units was thus available instead of the intended bulk of all attack air forces of the Luftwaffe.

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The number of units available for commitment would have been even considerably smaller if the Commander in Chief of the Luftwaffe had carried out his plan for a mass attack against Warsaw (Operation Wasserkante) on the afternoon of the first day.

It can be established here that in the actual conduct of operations the Commander in Chief of the Luftwaffe departed from the principle of power concentration so rightly included in his theoretical planning, and that this departure led to a considerable scattering of effort in the final plans

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and their execution. For the resounding success nevertheless achieved the Luftwaffe High Command is indebted primarily to the circumstance that the application of the power concentration was even less noticeable on the Polish side. However, the Commander in Chief of the Luftwaffe did not consider the success achieved on the first day as completely satisfactory and therefore ordered the same main mission for the second day. The complete success on the second day of



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proved the soundness of this measure, but again that success was due largely to the passive behavior of the Polish air forces.

In spite of the unmistakable vacillations of the Commander in Chief of the Luftwaffe in his interpretations of the situation and mission assignments, a clearly definable concentration of power nevertheless was developed by the end of the second day. At the same time the Luftwaffe High Command recognized correctly that with the surprisingly quick establishment of German air supremacy in the Polish theater the first main mission was accomplished and that it therefore could proceed to the execution of its second main mission, that of supporting the Army.

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114. On 1 September only 53 percent of the attack units of both air fleets was actually available for the main offensive mission.

115. Chapter 2, p. 29.

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The "vacillation phase" in the conduct of air operations was by no means over on the third day of combat, as is evident from the order to attack industrial targets, an inexplicable order in the existing circumstances.<sup>116</sup>

It was only with Directive # 2, for the third day of combat, that a clear line of action was established, which was adhered to consistently on the days which followed. Thus, from then on, the main mission for all air forces in Poland was to support the Army and, also from then on, the Commander in Chief of the Luftwaffe had no real command problems. The main emphasis in the conduct of air operations shifted from the strategic to the tactical sphere, so that command control shifted steadily to the air fleets, air division, air wings, and air groups. This downward shift of command control was concurrent with the increasingly close cooperation between the intermediate and lower levels of command of the Luftwaffe and the Army. The Commander in Chief of the Luftwaffe made one more effort to regain personal control by placing the 27th Bomber Wing under his own direct command.<sup>117</sup> He soon relinquished such efforts, however, probably in the wise realization that it was impossible in the existing situation for the Luftwaffe High Command to exercise control by the

116. Chapter 4, p. 50, above.  
117. Ibid, pp. 51-2.

traditional Army method of building up and committing reserves, and that it would have been wrong to make any such attempt.

The results and difficulties caused by such precipitant changes in the chain of command are revealed by numerous experience reports.<sup>118</sup> In practice, the Commander in Chief could exercise control only through the issue of long range directives and the assignment of large scope missions designed to secure cooperation between the branches of the Wehrmacht in line with directives from the Wehrmacht High Command. In all other respects the best guarantee for cooperation between the Luftwaffe and the Army was practical collaboration between the lower and intermediate level commands of the two branches.

One direct result of this exclusion of the Commander in Chief of the Luftwaffe from operational control was his slowly but steadily increasing interference in details, an activity shared by his executive staffs. Having no opportunity to influence the course of events, he proceeded to direct the activities of the individual squadrons, which, in the final essence, were under his command. In some cases, orders were transmitted directly to the troops, bypassing the responsible intermediate commands, a practice which increased



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the existing weaknesses and lack of clarity in the command system.

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On the other hand, the 100th Bomber Group, a unit under direct control by the Commander in Chief of the Luftwaffe, was not committed at all, although the Polish theater offered a unique opportunity to continue experiments with this unit under the desired actual conditions of war.

The overall course of operations in the first phase, from 1-5 September, is characterized by two facts. The first and most important was the achievement of absolute German air supremacy already on the second day of combat, a factor which determined the entire course of the campaign from then on. The second was the consistency displayed in the execution of the second main mission, that of supporting the Army,

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118. Study by 8th (Military Science) Branch of the Luftwaffe General Staff on the Polish campaign, pp. 2 ff.: "In the command sphere the first serious difficulties arose (in the zone of operations). It became evident that the available signal communications network was by no means adequate. The effects were particularly obvious because of the almost daily changes in the chain of command." Karlsruhe Document Collection.

119. Chapter 4, p. 71, and Chapter 8, pp. 144-5, above

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which led to the destruction of the entire Polish Army and its communications system. By 6 September this objective was so far achieved that the entire Polish front was in the process of a tactical withdrawal. In this sense the first phase of the campaign already served to vindicate the hopes and principles expressed by the Luftwaffe General Staff on the basis of practical experiments in the Spanish Civil War.<sup>120</sup>

3. Daily Missions of the Operational Luftwaffe. Air operations began to become steadily more and more contingent upon the operations of the Army, and the Army, in turn, began to depend in a steadily increasing measure on direct support by the Luftwaffe on the field of battle. These circumstances resulted in an increasing neglect of the considerations of air strategy in the conduct of air operations at all levels of command and considered restriction to the missions of tactical air warfare. Since the large majority of all officers in the Luftwaffe came originally from the Army and had a thorough understanding of Army tactics, they were all the more willing and able quickly to adapt themselves to their new tactical missions.

After only a few days of warfare the stage actually was

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120. Rise and Fall of the German Air Force (British Air Ministry), Part II: The Luftwaffe in the Offensive (1939-1942), Chapter 3.



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reached at which the air divisions of the operational Luftwaffe, including the units of Luftwaffe Command Eastern Prussia, to all intents and purposes had precisely the same mission as the tactical support group of the Special Purposes Air Command, a unit intended specifically for extremely close cooperation with the Army, and that mission was to provide direct support for the Army on the field of battle. Here it must be remembered that the capabilities of units of the operational Luftwaffe differed fundamentally from those of the tactical support group. The He-111 and Do-17 aircraft of the air divisions were not suitable for such tactical missions and the personnel lacked the appropriate training. In addition, the commands had not the necessary experience available to the Special Purposes Air Command and its sub-commands. Furthermore, a natural result of the existing chains of command and the distances involved was that it was not possible for the air divisions to secure as close contact as the Special Purposes Air Command with the appropriate army commands for the unexpected new mission on the field of battle. Quick improvisations were necessary to establish these close contacts.

Another disturbing circumstance was that the support missions of the bomber units of the operational Luftwaffe were



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restricted in time and area and were interrupted time and again by the assignment of long-range air missions, such as operations against airfields, railroads, and industrial targets. Briefly stated, continuity was lacking in Luftwaffe-Army cooperation. On the other hand the constantly changing types of missions produced a degree of flexibility in the command and troops which proved highly advantageous in the long run.

In practice, two separate systems of Luftwaffe-Army cooperation soon evolved. The one system was to maintain contact through air liaison teams or officers equipped with radio stations and attached by the air divisions, bomber wings, and bomber groups to the Army units they were to support. The other was a system of direct personal contact between the Luftwaffe and Army field commanders. Both systems functioned satisfactorily according to the current situation. Here again flexibility and the proper choice of systems were of decisive importance.

The air liaison teams proved particularly satisfactory in cooperation with large panzer forces and their spearhead units. The teams were able to move with the spearhead units and thus to report currently, thereby enabling the appropriate

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air commander to direct the operations of his units in accordance with his own interpretation of the existing situation. On the whole personal contact between the Luftwaffe and Army commanders concerned proved the most frequent and most fruitful form of cooperation. Various possibilities existed here to establish contact, for example, between air division and army headquarters, air wing and army corps headquarters, air group with army division, and air group with the individual infantry regiment. In the course of the campaign it was found that the best chances for success existed when personal contact could be established between the lowest level Luftwaffe and Army commanders concerned.

Friction resulted repeatedly in cooperation at higher levels, for example at the army level. The main reason was that the various army level headquarters frequently did not receive timely information on developments in the front lines so that requests for air strikes usually arrived too late. The air units were thus to some extent compelled to

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orient themselves on the tactical situation on the ground and more or less had to seek their own targets. In general, however, the principle became established that as a rule the air wing would first conduct reconnaissance with its headquarters squadron and would then direct air strikes on the basis of clearly established reconnaissance results. This method naturally could succeed only if it was possible to hold the necessary bomber units constantly available for action, in other words, only if these units were not diverted frequently for use in strategic missions.

The tactical missions dealt with here usually involved low-level attacks, in which the chances of success varied widely. The majority of the bomber units were equipped with He-111 aircraft, which were relatively stable and secure against weapons fire and were thus suitable for these missions. In contrast the Do-17 bombers with which some units were equipped had highly inflammable fuel tanks and were therefore decidedly unsuitable for the purpose. Nevertheless, the units frequently had to be employed in spite of these drawbacks.

It would be wrong not to mention here that, on closer examination, the first combat missions flown by the Luftwaffe were disappointing. This is true in spite of the resounding initial successes achieved against a practically nonexistent



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opponent. The existence of the training deficiencies previously referred to in this study was clearly confirmed in the first combat engagements. The unit commanders responsible in peacetime for training and in wartime for combat activities state unanimously that the initial aiming results were poor. This was due in part to mistaken identification of or failure to find assigned targets and in part to weather conditions and training deficiencies which resulted in the units scattering after approaching their targets in closed formation. A result of the indisputable training deficiencies was that only a fractional percentage of the aircraft reached their assigned targets at all. Particularly serious difficulties were encountered initially in railroad interdiction missions, and quite frequently only a few hits were scored in group-size attacks.

On the other hand it must be admitted that the aircraft crews after only a few missions accustomed themselves to bombing with live ammunition under actual war conditions and that bombing results improved considerably. On the whole the overall performances and the aggressiveness of the air units and their individual crews deserve recognition; in frequently continuous missions and in unaccustomed and dangerous low-level attacks they gave a good account of themselves.

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In appraising the overall performances of the Luftwaffe in the first five days of the campaign the whole complex of ground service organization plays an important role. For a balanced approval of the direction and execution of operations it must be remembered as an important factor that, during the first phase of the campaign, the units of the operational Luftwaffe operated from their home air bases, where the ground service organization had been developed under peacetime conditions. This applies with only a few exceptions. This means that in practice the air units were supported by a well developed and excellently functioning network of signal communications and by a supply and replacement service based on a closely meshed rail and road system. Furthermore this extensive network of communications remained unexposed to enemy action throughout the campaign.

In all their operations the bomber forces thus were able to plan, prepare, and execute their missions in the most favorable peacetime conditions conceivable. From the third day of combat on the logically expected difficulties remained restricted to those caused by weather conditions. This is the only explanation for the high daily frequency of missions flown and for the very small percentage of



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losses through damage while taking off or landing. Another favorable factor was the small size of the theater of operations and the fact that it was flanked on both sides by German territories--Pomerania and Eastern Prussia in the east and Silesia in the west--in which established ground service organizations existed. In most missions the units thus had only a short approach route to their targets and, if unable to return to their take-off airfields for any reasons, could find favorable landing conditions in practically any direction. Here again, therefore, the conditions under which the units operated were the most favorable conceivable. In the few cases in which units later lacked the advantages of their home bases because of their transfer to airfields in Polish territory, the unfavorable results became apparent immediately: the daily mission capacity per unit was lower, supply difficulties developed; signal communications were deficient; repair facilities were lacking; and the condition of runways was poor. This usually led to the units being transferred back to their former bases as speedily as possible for practical reasons.

This latter fact deserves special mention because it resulted naturally in the inability to gather experience



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throughout the Polish campaign on the subject of the large-scale forward displacement of air units to unprepared airfields in enemy territory. It was also the reason why the previously established special air administration area commands could not be tested. The activities of Special Air Administration Command 3 (Air Administration Command III, Berlin), for example, remained restricted to the speedy construction and development of the signal communications network and to the reconnoitering of a few airfields never used in later operations and the developments of four existing Polish airfields in Western Prussia. Its activities soon ceased.

The quality of the ground service organization varied widely in the various areas. In Silesia and Pomerania it was adequate and well developed; in Eastern Prussia, in contrast, it was inadequate for offensive formations and only barely adequate for operations by dive-bomber and fighter units. What seems a failure by the ground service command here was in reality due to existing circumstances. The defense plans valid for Eastern Prussia for many years had resulted for a number of years in restriction of all defense preparations to the Heilsberger Triangle, and consequently the Luftwaffe ground service organization also had remained

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restricted to this area. No airfields at all were developed in the border areas. Under the new plan of operations, the forces of both branches of the Wehrmacht already in Eastern Prussia and the additional units assigned to there were assigned a decisively important aggressive mission. Then it was found immediately that the available base area was far too small for the operational air forces required. The base area can only be described as congested when the transfer of additional strong forces to Eastern Prussia commenced on 5 September.

The only reason why it was possible at all to operate from the overcrowded airfields was that there was no longer any need to fear enemy action. The first condition for use of what might be called "the Isle of Eastern Prussia" as an aircraft carrier was absolute German air supremacy, and the Luftwaffe had the unexpected good fortune to acquire such undisputed supremacy from the second day of combat on. Even if the Poles had launched only one air attack against the base area in Eastern Prussia at the outset, this probably have created practically insoluble problems for the German command. In summarizing the above findings it must be stated that the existence of home bases for the Luftwaffe around Poland and the possibility to use them under conditions identical with



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those of peacetimes was one of the decisive factors contributing to the success of the operational Luftwaffe.

The idea of providing escort aircraft had developed from theoretical considerations and practical experience in the years immediately prior to the war, and had not yet been included in Luftwaffe Service Manual # 16.<sup>122</sup> Escort missions were to be carried out by single- and twin-engine fighter units.

The Me-110 twin-engine fighter had been developed specifically for escort missions, and was just being introduced in air units at the outbreak of war, so that no practical experience in this field was available at the time. During the Polish campaign there was also no possibility to gather such experience because already from the third day of the campaign on bomber units no longer required escorts. Insofar as the German command was satisfied with the results obtained in the few successful escort missions flown it was indulging in self-deception: in the small areas involved in the campaign and the short approach flight to assigned targets the operating ranges of the twin-engine

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122. See Part 1, pp. 6 ff.



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fighters then available were barely adequate. For real strategic air warfare on a continental scope the Me-110-C  
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 planes then in service would have been inadequate.

No useful tactical experience was gained in the first phase of the campaign, and just as little was gained in the field of cooperation between twin-engine fighters and bomber units. At the beginning of the campaign the training of twin-engine fighter crews was still in the initial stages. Fighter squadrons at the time consisted of three flights (at the time called swarms--Schwarme) each containing four aircraft. The fighter group thus had one headquarters flight of four aircraft and three squadrons totaling 36 aircraft, making a total strength of 40 aircraft in  
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addition to twelve held in reserve. Developments in the Polish campaign from 3 September on had the result that twin-engine fighters from then on were employed primarily in roving fighter missions. Here, they were particularly successful in low altitude attacks against airfields, troops, and road and rail targets.

On the first few days of the campaign the operations of normal fighter units also were restricted largely to escort missions for bombing units. All German fighter

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units were equipped with Me-109-E aircraft with a maximum penetration range of 108 miles, so that their tactical capabilities were limited. They were capable of combat action for any appreciable time only when circumstances were such that the approach route to the target area was short. Furthermore, immediately after German air supremacy had been achieved the fighter units also were employed in roving missions and in low-altitude attacks against Polish airfields, troops, and road and rail targets, in which they were highly successful. In addition the units provided escorts for the tactical reconnaissance planes of the army, and for courier planes, and executed similar other missions.

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123. For Performance data see Part 1, p. 60.

124. See Part 1, p. 56.

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The superiority of the German over the Polish fighter arm in speed, maneuverability, and fire power became clearly evident in the battle for air supremacy from the first day of combat on. The German Me-109-E fighter was armed with two 20-mm Oerlikon cannon and two Type 17 machine guns. That the German fighters in spite of their superiority in so many aspects over their opponents shot down so few Polish fighters was due to the increasing frequency with which the latter avoided battle.

Cooperation between fighter and bomber units was secured either by means of orders from higher headquarters or by means of personal contact and oral agreement between the commanding officers concerned. Although voice radio communication between bomber and fighter units was technically possible it was rarely used because the method of oral agreement soon proved satisfactory and was far more simple and reliable.

In the matter of tactical control the rule was established that units were to be assigned directly to air divisions and only in exceptional cases to an air fleet. The organizational consolidation of bomber and fighter units under a commander of bomber units was a rare exception, as in the case of the establishment of a tactical support



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group, and was limited to the execution of a few special missions. After execution of the mission involved the assignment of fighter units under a bomber command was immediately revoked.

Cooperation with the Army became increasingly prominent. Arrangements for fighters to escort Army tactical reconnaissance or other individual planes, and particularly to carry out low-level attacks against Polish troops were made in personal discussions between the fighter unit commander and the army commands concerned, a system which appears to have proved satisfactory in every respect.

Fighter operations thus within the very first few days of the campaign, after the specific missions of air power had been accomplished, shifted to missions in support of the Army, such as participation in ground combat and the provision of escorts for individual Army planes. These new types of missions necessarily resulted in new methods. Gradually group and squadron size missions gave way to swarm (four or five aircraft) and pair size missions. Strictly speaking, fighter operations in the real sense thus ceased very soon after the beginning of the Polish campaign.

4. Night Operations of the Operational Luftwaffe. For the bulk of the air forces night attack missions were some-

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something completely new, a field in which no peacetime experience whatever was available. The only two night air attacks on record were carried out in the first phase of the campaign, so that they must be treated here in the detail their importance merits. Initially, the Commander in Chief of the Luftwaffe planned to order continuous night harassing attacks against certain individual targets in the night following the first day of the campaign. Two different technical methods were to be employed, but the attacks were not carried out, partly because of weather conditions and partly for other, unknown, reasons.

The first night attack thus was carried out in the night of 2-3 September, without radio navigation. The 2d (Bomber) Group, 1st Training Wing, which was based on the Powunden tactical airfield in Eastern Prussia, was directed to dispatch one squadron each to attack the Vistula River bridges at Graudenz and Kulm and the bridges across the Netze Canal in order to prevent an assumed withdrawal of Polish forces during the night from the Corridor area towards the southeast. The third squadron was to increase the effectiveness, by means of night harassing raids, of the results achieved in daylight attacks against the Warsaw-Okecie airfield. No reliable information is



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available as to what headquarters ordered this night attack.

Detail information is available concerning the attack by the 4th Squadron of the training wing<sup>125</sup> and from this information it is possible to gain an insight into the standards achieved in night operations at the time and into the training status of the crews participating. It must be borne in mind, however, that the the 2d Bomber Group was a specially organized unit, superior in every respect to the average bomber units then existing. The entire group was equipped with He-111-H aircraft powered by Jumo 211 engines, and the entire attack was flown by terrestrial navigation. According to the reports turned in by the crews all assigned targets were hit.

The attack by the 3d Squadron against the Warsaw-Okecie airfield took place in complete darkness, so that the airfield could not be seen. For this reason the attack was diverted to other military targets in the outskirts of Warsaw. It was impossible to observe the results, but

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125. War Diary and Log Book of the 4th Bomber Squadron, 1st Training Wing; Karlsruhe Document Collection.



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30 Polish searchlights were counted within the Warsaw, the penetration range of which did not exceed 13 000 feet. These three squadron size attacks were the only ones flown without radio navigation in the Polish campaign. The most remarkable feature about them is the primitive method of navigation employed. In retrospect, the objective also appears questionable. The best that could be achieved was a certain measure of disruption in traffic crossing the bridges, presuming that bombs actually landed in the immediate vicinity of the bridges and that sizable bodies of troops actually were crossing the bridges that night, and both of these points were completely unclear. The mistake was made here of not exploiting for the first time the possibilities of radio navigation in a combat mission.

In sharp contrast with the above attack by a bomber group of the training wing was that carried out by the 100th Bomber Group in the following night, the night of 3-4 September. This time radio navigation and blind precision bombing methods were employed. At an early stage Hans Plendl, an engineer, had developed at the Luftwaffe testing station at Rechlin what was called the X-method, by which planes could be guided to a target up to 240 miles distant with a margin of error of approximately 1200 yards square. The first

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practical application of this method in war marked a decisively important turning point in the techniques and tactics of the Luftwaffe and beyond that of all existing air powers.

v The initial intention had been to employ the X-method for the first time in a night attack against government buildings in Warsaw in the first night of the campaign. This plan was cancelled for reasons still unknown. Instead, the first attack by the unit specially organized for the purpose was carried out in the night of 3-4 September against ammunition installations in the vicinity of Warsaw. The attack order issued by the Commander in Chief of the Luftwaffe at 1620 on 3 September read as follows:

100th Air Signal Battalion\*in the night of 3-4 September will conduct continuous attacks against ammunition depot at Regny; secondary target Palmiry ammunition depot.

The attack was flown at an altitude of 18 000 feet with 550-pound explosive bombs and incendiaries. The unit reported that the bombs were well placed, which statement was corroborated by air photo reconnaissance on the following day. Interpretation of the air photos revealed that the bombing data used in computing the release for the 550-pound bombs had been adequately precise. On the other hand, it was clear that the

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incendiary bombs had been blown sideways by winds of an unknown velocity in the target area. Nonetheless, the overall results of this first blind precision bombing of a target under actual war conditions could be considered satisfactory.

However, the German air command at the time did not appreciate fully the significance of this success. <sup>126</sup> One reason for this may have been that it was considered justifiable to believe that another bomber unit had attacked the same target.

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126. For the principles of the X-method see Appendix S at end of the Appendix Volume.

\* Code designation of the 100th Bomber Group.

127. This is a personal opinion expressed to the present author by General Martini, Luftwaffe Chief Signal Officer.



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5. Operations of the Tactical Support Units under the Special Purposes Air Command. The establishment of a special tactical support force in the form of the Special Purposes Air Command was a deliberate innovation in the history of air warfare resulting from experience gained by the German Condor Legion in the Spanish Civil War after 1936. The establishment of this force for the Polish campaign was suggested in the summer of 1939 by Generalmajor Freiherr von Richthofen, who later commanded the force and who had commanded the Condor Legion in Spain, from where he and his staff had only returned in May 1939. It is only natural that in organizing his new command staff for the planned Special Purposes Air Command he selected primarily seasoned members of the Condor Legion.

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The organization of a special tactical support command patterned after the close support force tested in Spain was to undergo its first trial by fire in the Polish campaign. The command tactics and techniques to be used were entirely new and were to be tested in combat as a basis for the future development of the new arm of the Luftwaffe. It proved satisfactory not only in Poland but later also

128. In discussions with Colonel D.H.W. Deichmann, Munich, the present author obtained valuable information on this subject. Colonel Deichmann, a former member of the Tactical Support Group, also served an assignment as adjutant to General von Richthofen.

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in the 1940 campaign in the west. It is only natural that the combat experience gathered in the Spanish Civil War had been on a considerably smaller scale, but it served nevertheless as the new starting point for the Polish campaign. It resulted in a flexibility in air operations hitherto unknown and in particularly close collaboration with the Army on the field of battle.

The mission of the new force in the Polish campaign was to support the center of the German Tenth (main attack) Army, particularly the XVI and XIV Corps through close cooperation of the tactical support forces of the Luftwaffe (dive-bombers, ground-attack aircraft, single- and twin-engine fighters) with tank and infantry forces, and in addition to combat the Polish air forces in the air and on the ground. The general direction of the attack was from Silesia (the area around Oppeln) towards Warsaw. The mission was achieved through the application of two basic principles: (1) the maintenance of particularly close contact between the tactically responsible Luftwaffe and Army commanders in the battle area, and (2) firm control of all air operations by the responsible air commander.

Close cooperation with the Army produced good results at a very early stage. Day and night the Chief of the



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Special Purposes Air Command was in close personal contact with the various army field commanders, particularly with General von Reichenau, in command of the Tenth Army. This close contact was achieved by establishing the Luftwaffe and Army local command posts as close together as possible, by constant telecommunications, by car trips, and by personal discussions on the actual field of battle. In addition, permanently assigned liaison officers were exchanged to insure current contact. The air liaison officers thus attached to army commands had functions entirely different from those of the former air tactical support commands attached to armies and army groups, the activities of which had been restricted to such functions as advising the army commands, interpreting the tactical situation on the ground, and requesting air strikes when necessary. Relieved of these responsibilities, the new air liaison officers were required to keep their own commanding officers directly and constantly informed on the current situation in ground operations.



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As a rule very young air officers were assigned to these posts. They were given radio cars and attached primarily to the army corps and divisions in the areas of main effort or even to panzer spearhead units. Their main task was to transmit factual reports to the rear and to relay Army requests to the rear and to higher headquarters. In this way the local air commander was able to develop his own interpretation of the current situation and form his decisions, and the Chief of the Special Purposes Air Command as a result was often more accurately and speedily informed concerning the actual situation on the ground than the high-levels of army command and no longer needed to wait for army requests for air strikes, which usually had arrived too late. This, in turn, enabled him to commit his firmly controlled tactical support units speedily in the proper area. The method thus established proved highly satisfactory in all situations and at all times. It was this disregard of conventional official channels which made it possible at all to provide timely and effective local support for army units.

Collaboration with the tactical air support commands attached to armies and army groups ceased almost entirely. These commands were the official representatives of the

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Luftwaffe at the various army headquarters and had their own specific missions. They were bypassed deliberately in matters concerning the tactical employment of air forces because their inclusion in the chain of command could only cause delays. Cooperation with the Army was improved even further through the current transmission of all information obtained by the reconnaissance and combat units of the Special Purposes Air Command to the Army, and what is most important, to the units on line directly. Here the higher and intermediate army commands frequently were bypassed and only informed later.

Closely integrated air and ground action on the field of battle thus was secured by a threefold method, and the development of the systems used was due almost exclusively to the initiative of the Luftwaffe. Cooperation in this area was favored by the personal characteristics of the two responsible officers concerned, the Chief of the Special Purposes Air Command and the Commanding General, Tenth Army, and it was not in all areas that Luftwaffe-Army cooperation functioned as smoothly.

Cooperation between the Special Purposes Air Command and higher Luftwaffe headquarters presented an entirely different aspect. The extremely close Luftwaffe-Army cooperation



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which proved so highly satisfactory in the case of the Tenth Army automatically precluded the possibility of tactical control by higher level Luftwaffe headquarters, because their orders and directives as a rule arrived too late.

As a result all control by higher Luftwaffe commands was almost completely excluded within a very short time. Initially, the Special Purposes Air Command was assigned under

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the 2d Air Division. However, this division had missions of an entirely different type, which kept it fully occupied.

In addition, the division headquarters was tied down to its ground organization and its signal network in Silesia, so it very soon ceased to exercise any influence. In the sur-

prisingly rapid development of combat operations all orders and instructions from the division arrived too late. The

first step towards complete operational independence was made when the special force was placed directly under the Fourth Air Fleet. This measure was requested on 3 September by General Loehr, in command of the air fleet, orally,

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and became effective on the next day. In practice, however,

the air fleet control existed only on paper. The air fleet headquarters was too far distant, did not have adequate

communications available, and was unable to direct operations on the field of battle.

129. See Order of Battle, Part 1, p. 4.

130. See Part 2, p. 81.



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The logical result of these circumstances was that, already from 5 September on, the Chief of the Special Purposes Air Command was completely independent of higher headquarters in the conduct of operations. The fact that he had close contacts with the Commander in Chief of the Luftwaffe greatly facilitated his efforts towards this end, since he was informed currently on all fundamentally important developments, tendencies, and directives of the operational command. From now on he was able to adapt his own plans to the overall pattern of the Luftwaffe High Command and at the same time could present his desires and requirements directly with good chances that they would be fulfilled speedily.

Since the Fourth Air Fleet received its information exclusively from reports and requests arriving always too late through official channels, and since the decisions it made and the directives it issued were also always too late and could not keep pace with developments in the situation, a set of circumstances gradually developed in which the Special Purposes Air Command, at the expense of both air fleets, received all reinforcements it required for the execution of its missions. Thus, it was given command over

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77th Bomber Wing in response to a request submitted as early as on 4 September.

In many respects the command techniques and tactics of the Special Purposes Air Command differed entirely from those of other high level Luftwaffe commands assigned similar missions. The tactics, which the commander was able to develop on the basis of his experience in Spain and because of his complete independence, were determined on the one hand by the specific mission of his tactical support force, that of supporting the Army on the field of battle. The other determining factor was the strength and composition of the tactical forces available to him in the form of dive-bombers, ground-attack aircraft, and single- and twin-engine fighters. Other important factors were the ground service organization, the available supply system, and the signal communications system.

The ground service organization available for the units of the special force in their assembly area at the outset of the campaign was assigned in accordance with Operational Plan Weiss of 1939 by the Commander in Chief of the

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Luftwaffe. The commander was in no way satisfied with the organization which, in his expressed opinion "had been  
131. See Appendix 17: Ground Service Organization Map.

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allocated on the basis of faulty considerations and inadequate experience in close support operations." However, the mistakes made in this respect are explained by the fact that the plans and preparations for the concentration against Poland were already completed before the Commander in Chief of the Luftwaffe decided to establish a special tactical support force. As a result, the tactical support units had to be fitted into the existing organization in Silesia in addition to the air forces already allocated to the area. The requests of the special force commander called for an allocation of airfields closely adjacent to each other for his units in order to facilitate control. He also argued soundly that his units should be based closer to the frontier from the very outset in order to be able to exploit fully the relatively small penetration range of his aircraft. Finally, he stipulated that his units should be based in an area with the same weather conditions as those in the anticipated area in which they were to operate.

It appeared impossible to remedy the existing disadvantages before an advance was achieved into hostile territory, when every effort was to be made to displace the units speedily to airfields close to the front. One condition



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which was indispensable for the flexible and close-range tactics involved was the establishment of a ground service organization in hostile territory and secure supply services for the tactical units. For the performance of this task the air administrative command responsible in Silesia, the Air Administrative Command VII, with headquarters at Breslau, established two Special Air Administrative Area Commands. Of these, Special Air Administrative Area Command, under Generalmajor Pflugbeil, was assigned exclusively to take care of the needs of the Special Purposes Air Command, the chief of which continued to insist that his force must have a supply and replacement system of its own, which would be able to handle the requirements of the air units even far inside hostile territory and independently of the home organization of the base area, which would be too far in the rear.

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frontier  
Similarly to the other/air administrative area commands which were all organized and committed simultaneously, Air Administrative Area Command 16 had a threefold mission. First, it was required to expand and organize the terrain in the wake of the German advance; secondly,

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132. See Part 1, p. 78.

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it was to reconnoiter the ground and develop the ground service organization in occupied hostile territory; and thirdly, it was to supply the air units with all requirements in the newly established base areas.

In practice, the units of the Special Purposes Air Command themselves reconnoitered their air fields. The supply situation naturally became increasingly difficult as the air units moved farther and farther from their home bases. It was impossible to make prior preparations, because the forward displacement of the units to near front airfields hinged exclusively upon developments in the ground situation. For this reason supply problems were a source of grave concern even in the first few days of combat. The units of the tactical support force flew far more missions daily than the Chief of Luftwaffe Supply and Administration had allowed for in his advance computations, and within the first few days of operations the intense air activities resulted in an ammunition consumption far exceeding the calculated requirements. The first result of this circumstance was that the units were instructed to economize in bombs and to load only seventyfive percent of their possible load.

Situations arose in which dive-bombers had only enough bombs available for one single mission. Other units at times

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had only sufficient fuel available for a few planes. The air administrative area command admittedly had a transport group of forty Ju-52 planes, but these frequently had to be employed in other areas under orders from higher headquarters. The air transportation space available to the Luftwaffe was inadequate to move forward by air all supplies required by the field units during their advance.

Other difficulties arose from the fact that surface reconnaissance and advance parties and supply columns closely following the advance on the ground frequently strayed into No-Mans Land, where they came under attack by isolated Polish ground forces. This repeatedly resulted in personnel losses and necessitated the withdrawal of elements which had advanced too far. These difficulties all were due to the unexpectedly rapid tactical developments on the ground and the urgent eagerness of the air units under the Special Purposes Air Command to move forward.

The last important condition for the intended, and later implemented, flexible conduct of operations by the Chief of the Special Purposes Air Command was a flexibly and smoothly functioning signal communications system. A foundation for this important service existed in the peacetime network of Air Administrative Area Command VIII in Silesia, which



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was expanded as part of the mobilization preparations. This entire network was available for exclusive use by the tactical support units because the long-range bomber forces of the operational Luftwaffe--for which the network had been intended--were to operate from their home bases for the time being. On the other hand, the tactical support units were to follow the advance on the ground as speedily as possible, so that an additional signal communications system became necessary. The establishment of this network was a responsibility of Colonel Aschenbrenner, under Air Administrative Area Command 16. Following the German Tenth Army in its advance an air signal regiment under Colonel Aschenbrenner constructed Trunk Line # 2 from Koethen to the front areas.

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From the outset the Special Purposes Air Command was assigned a Special Luftwaffe Signal Company. This company was controlled by the command's signal staff officer and consisted of telephone and radio operating platoons. It was

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responsible for the establishment and maintenance of communications between the command headquarters and its tactical units and the appropriate Army commands. The company was to commence operating in hostile territory simultaneously with the other Luftwaffe signal units intended for this purpose, but it had to displace forward sooner because the Special Purposes Air Command considered the existing network completely inadequate. The main requirement throughout was to push forward wire communications to as close as possible behind the spearhead units in order to enable the command post to move forward as early as possible.

On the third day of combat already the Special Purposes Air Command found itself compelled to take direct action in this field because none of the Luftwaffe signal commands was able to keep pace with operational developments. The action taken consisted of seizure of some of the Polish communication network. The parts taken over were realigned, improved, and in some cases reconstructed. On 6 September it was established that the signal communications system within the command zone was functioning satisfactorily, so that the communications conditions necessary for a smoothly functioning tactical control could be considered to exist.

The methods of command employed in this tactical control



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were a personal and direct matter of the commander, in contrast with the slowly functioning control by the Commander in Chief of the Luftwaffe, or by air fleet or air division headquarters. The independence of the command, necessitated by the existing circumstances, facilitated quick decisions consonant with the current and quickly changing situation. The structural organization of this command system and the small strength of the air units controlled enabled the commander to issue operational orders directly to each individual group. This aimed at and achieved a centralized and firm control of operations. In contrast with the practice of requiring individual groups and wings to cooperate directly with specific Army commands, a practice which developed soon in the case of the three air divisions operating in Poland, the individual units of the Special Purposes Air Command had no direct contact with army headquarters or troops.

The commander frequently proceeded personally by liaison plane to the various Army commands and the spearhead units to reconnoiter the situation. He himself interpreted the radio reports concerning the tactical situation received from his air liaison officers in the various sectors, evaluated the situation and the possibilities for action,



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and then, without coming to an agreement with the Army, himself directed his units to the targets he had decided upon. One advantage of this method was the possibility within the shortest possible time to support the Army's advance at the point most appropriate in the existing situation. Another advantage was the possibility to obtain maximum performances each day from the air units: dive-bomber units took off on missions as many as five times daily on the average, bombers were dispatched as often as ten times daily.

So far as unit attack tactics were concerned, the following proved highly successful time and again: Acting as air-carried artillery, dive-bombers attacking immediately ahead of the German lines prepared the way for the attack on the ground. The effects of these attacks, particularly on the enemy morale, was often a decisive factor. Immediately after the dive-bomber attack, ground-attack aircraft took off in low-level attacks against the still paralyzed enemy defenses. In other cases the ground-attack aircraft supported the ground forces directly, searching out

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their own targets within the battle area. Finally, they would make a surprise appearance at low altitudes in the enemy rear, where they would attack movements on roads.

At an early stage low-level air attack operations were restricted to ground-attack units. At the outbreak of the war dive-bombers were also used in low-level attacks, but already on 1 September the losses due to ground fire were so heavy that they received orders on the same day to refrain from such operations. One regrettable feature about the high- and low-level operations of the tactical support forces was that units now and again inadvertently attacked German troops. During sudden panzer drives and rapid infantry advances by forward elements it sometimes was practically impossible for aircraft crews to differentiate between friend and foe.

Basically, the main mission of the single- and twin-engine fighters was to protect German units attacking on the ground against air attack. However, this mission was only of practical importance as long as threat of Polish air action existed, and that threat was abolished already on the second day of combat.

The expansion of the tactical support force which commenced on 6 September is shown clearly in the following

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table, which extends beyond the phase of the campaign dealt with in this chapter in order to reveal the development in continuity.

Type	Unit	Assigned on
1. Reconnaissance	1st Strat Sq, 124th Wing	
2. Dive-bomber	a) 77th Wing w/1st & 2d Gp, plus 3d Gp of 51st Wing & 4th Gp of 2d Tng Wing	Sep 8 Sep 24
	b) 2d Tng Wing w/1st Gp plus 1st Gp of 76th and 1st Gp of 1st Wing	6 11
3. Ground-attack	2d Gp of 2d Air Wing	3 or 4
4. Twin-engine fighter	1st Gp of 2d Wing (on 4 Sep under 2d Air Div) 1st Gp of 76th Wing	22-30
5. Fighter	1st Gp of 76th Wing 1-4 Sep under 2d Air Div	
6. Bomber	77th Wing w/2d & 3d Gp plus 1st Gp	9 20
7. Transport	4th Gp, 1st Sp Bomber Wing	23-26
8. Air Signal	Sp Air Sig Company	
9. Paratrooper	3d Gp of 1st Regt (for protection of airfields)	11-16
10. AAA	a) 1st Bn of 23d Regt b) 1st Bn of 3d Regt (both for protection of airfields)	4-16 14-15 <sup>134</sup>

It can be said in summarizing that the principles governing

134. Units for which no date or dates of assignment are given were under the Special Purposes Air Command throughout the period.



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the command and tactics of the tactical support force were developed, tested, and found satisfactory within the first five days of the campaign. Although methods were in some cases more refined later in the campaign, no fundamental changes took place. In particular the two newly developed weapons, namely, the dive-bomber and the ground-attack aircraft, were subjected to a comprehensive test during this period and proved satisfactory in every respect.